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OTHER DEPARTMENTS

The American Economic Review

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MONETARY SYSTEMS AND ACCELERATOR MODELS

By HYMAN P. MINSKY*

A significant part of recent literature on both growth and business-cycle theory has been based upon some form of an interaction between a consumption (saving) relation and an induced investment relation. The authors who have constructed these accelerator-multiplier models have paid little, if any, attention to the monetary prerequisites and effects of the assumed processes.[1] Obviously the accelerator-multiplier process takes place in the context of some monetary system. In this paper the manner in which the time series generated depends upon the interaction of an accelerator-multiplier process and the monetary system will be investigated: the main emphasis will be on the upper turning point and the possibility of generating steady growth. In this paper the lower turning point is unexplained aside from noticing how the various monetary systems can act as a brake on disinvestment and also, by changing liquidity, set the stage for a recovery.

The procedure will be to examine the result of combining a linear accelerator-multiplier model with a number of alternative monetary systems. The terms (interest rate) and the manner (type of liability) of financing investment are affected by the behavior of the monetary system. In turn, both money-market conditions and the balance-sheet structure of firms affect the response of firms to a change in income. This can be interpreted as making the accelerator coefficient an endogenous variable related to the monetary system. Hence the material

* The author is associate professor of economics, Brown University. A large portion of the work on this paper was done while he was a visiting associate professor at the University of California, Berkeley. He wishes to acknowledge his debt to Julius Margolis, Roger Miller and Merton P. Stoltz for their helpful comments and suggestions.

[1] J. R. Hicks, *A Contribution to the Theory of the Trade Cycle* (Oxford, 1950) and S. C. Tsiang, "Accelerator, Theory of the Firm, and the Business Cycle," *Quart. Jour. Econ.*, Aug. 1951, LXV, 325-41 briefly consider monetary factors.

in this paper could be formalized as a series of nonlinear accelerator-multiplier models.[2]

This paper is divided into four sections. The first is a brief review of the attributes of both linear and nonlinear accelerator-multiplier models, which is followed in the second section by an analysis of the behavior of the accelerator model with the quantity of money constant. The third section is an investigation of how the system would behave with the quantity of money varying in a number of different ways. In the last section some implications of the analysis for monetary and fiscal policies are briefly explored.

I. *Formal Attributes of Accelerator-Multiplier Models*

The essential linear accelerator-multiplier model can be written:[3]

$$Y_t = C_t + I_t \tag{1}$$

$$C_t = \alpha Y_{t-1} \tag{2}$$

$$I_t = \beta(Y_{t-1} - Y_{t-2}) \tag{3}$$

where Y = income, C = consumption, I = investment, α = marginal (= average) propensity to consume, β = accelerator coefficient and t is the number of the "day." By substitution, equations (1)-(3) yield:

$$Y_t = (\alpha + \beta) Y_{t-1} - \beta Y_{t-2} \tag{4}$$

Equation (4) is a second-order difference equation; its solution in general is of the form:

$$Y_t = A_1\mu_1{}^t + A_2\mu_2{}^t \tag{5}$$

where A_1 and A_2 depend upon the initial conditions and μ_1 and μ_2 are determined by the values of α and β.

Aside from the effects of the initial conditions, the time series generated by a second-order difference equation can be any one of the following: (1) monotonic equilibrating; (2) cyclical equilibrating; (3) cyclical with constant amplitude; (4) cyclical explosive; (5) monotonic explosive.[4] By itself, no one of these five types of time

[2] Obviously the interest rate and consumer debt affect consumption expenditures also; therefore the consumption coefficient also depends upon the behavior of the monetary system. The "Pigou effect" can be interpreted as a particular relation between the consumption coefficient and the monetary system. Such effects are ignored in this paper.

[3] This stripped model exhibits the characteristics of a linear accelerator-multiplier model which are important for the problems discussed in this paper. The incomes should be interpreted as deviations from a "zero" level of income given by $Y_0 = \lambda/1-\alpha$ where λ could be identified with autonomous investment or "zero income" consumption.

W. J. Baumol, *Economic Dynamics, An Introduction* (New York, 1951), Ch. 10, 11, gives a very simple discussion of the solution to second-order difference equations.

[4] The type of time series generated is determined by the values of μ_1 and μ_2, which in turn depend upon the values of α and β. For a type-1 series, μ_1 and μ_2 are both less than 1, for a type-2, 3, or 4 series μ_1 and μ_2 are conjugated complex numbers, and for a type-5 series μ_1 and μ_2 are both greater than 1.

series is satisfactory for business-cycle analysis. Types 1 and 5 are not cyclical. If they are to be used, either floors or ceilings to income or pushes (systematic or random) from outside have to be posited. A time series of type 2 would in time result in the cycle dying away, so that some systematic or random push is required to maintain the cycle. A time series of type 4 would in time generate fluctuations greater than any preassigned value. Hence floors and ceilings have to be posited to constrain the fluctuations. A type-3 time series is a self-sustaining cycle, but its existence depends upon a particular value of β and, in addition, the time series it generates is "too" regular.

A way out of this difficulty is to have the α and β coefficients vary over the cycle, thus generating a time series which is a combination of the different types of time series. Hicks and Goodwin do this by assuming that the value of β is so great that, unless constrained, an explosive time series is generated, but that constraints, in the form of a maximum depreciation rate and full employment (or the capacity of the capital-goods-producing industries), exist. These constraints force realized investment to be different from induced investment, and, formally, they can be interpreted as changing the value of β. As the value of β is assumed to fall (rise) when income is very high (low) or increasing (decreasing) very rapidly, an acceptably irregular cyclical time series is generated. Obviously by linking explosive, cyclical and damped movements together, any type of time series which is desired can be generated.

A set of formal nonlinear models similar to those of Hicks and Goodwin can be generated by positing that the value of β, the accelerator coefficient, depends upon money-market conditions and the balance sheets of firms. These factors in turn depend upon the relation between the level and rate of change of income and the behavior of the monetary system. In this paper however the mathematical model of the accelerator process will be a simple linear form. It is hoped that what is lost in mathematical neatness may be offset by what is gained in the identifiability of the economics.

So far we have not taken up the effects of the initial conditions. The initial conditions are particularly important in determining the income generated by a type-5 (monotonic explosive) time series for small values of t. To generate a type-5 time series, μ_1 and μ_2 are both greater than 1 in the relation $Y_t = A_1\mu_1^t + A_2\mu_2^t$. To set off the recursive process two levels of income Y_0 and Y_1 (the initial conditions) are needed, which determine the values of A_1 and A_2. If Y_1 is greater than Y_0 and the ratio of Y_1 to Y_0 is less than μ_2, the smaller root, then A_1, the coefficient of μ_1, the larger root (also called the dominant root), will be negative. As the larger root will in time dominate, a negative

A_1 will in time result in a negative Y_t. Hence if the rate of increase of income given by the initial conditions is less than the smaller root, there will be a turning point in the time series even though the values of α and β are such as to generate a monotonic-explosive time series.[5]

This leads to an alternative way of interpreting the Goodwin-Hicks type of nonlinear accelerator models. When the floors and ceilings become effective, a new set of initial conditions is, in effect, imposed on the time series. If these new "initial conditions" result in the sign of the coefficient of the dominant root changing, then in time the direction of the movement of income will be changed. The effects of monetary constraint can also be interpreted in this manner.

Following Goodwin and Hicks we will assume that the value of β is so large that, unless it is constrained, the accelerator-multiplier process will generate an explosive time series. The solution of the accelerator-multiplier model will be $Y_t = A_1\mu_1^t + A_2\mu_2^t$ where $\mu_1 > \mu_2 > 1$ and the initial conditions are such ($Y_1/Y_0 > \mu_2$) that A_1 and A_2 are both positive. For the range of magnitudes of Y_1/Y_0 which it seems sensible to posit, A_2 will be much larger than A_1. This means that at the early dates (t small) of the development the weight of μ_2 is high while at the later dates μ_1 dominates. The rate of growth of income generated by the explosive process being considered increases in time, approaching μ_1 as a limit.[6]

The increasing rate of increase of income that such an explosive accelerator process generates will in time be greater than the accepted possible rate of growth of productive capacity. In order to be able to maintain the continuity of the accelerator process, we assume that all the relations are in money terms and that the accelerator process may generate changes in the price level. We will, at a number of points, call attention to some specific effects of price level changes.

II. *The Accelerator Model with the Quantity of Money Constant*

In this and the following section we will derive several time series that result from the interaction of an accelerator-multiplier process

[5] If the two roots are equal, then the solution to the difference equation is $Y_t = A_1\mu_1^t + A_2t\mu_1^t$ (see Baumol, *op. cit.*, Ch. 10, 11). If $Y_1/Y_0 = \mu_1$, then $A_2 = 0$ and a constant-rate-of-growth series is generated. If $Y_1/Y_0 < \mu_1$, then $A_2 < 0$ and in time $Y_t < Y_{t-1}$; if $Y_1/Y_0 > \mu_1$, then $A_2 > 0$ and, at least in the early days, the rate of increase of income is significantly greater than μ_1. In terms of a second-order difference equation, a steady rate of growth of income can be characterized as a knife edge: it requires not only that α and β be such that $\mu_1 = \mu_2 > 1$ but also that $Y_1/Y_0 = \mu_1$ (see S. S. Alexander, "The Accelerator as a Generator of Steady Growth," *Quart. Jour. Econ.*, May 1949, LXIII, 174-97.

[6] In Sections II and III a number of tables will be exhibited to illustrate the results of combining an explosive accelerator-multiplier process with a number of different monetary systems. In each case it is assumed that $\alpha = .8$, $\beta = 4$, $Y_0 = 100$ and $Y_1 = 110$. For these values $\mu_1 = 3.73$, $\mu_2 = 1.07$, $A_1 = 1.1$ and $A_2 = 98.9$ so that $Y_t = 1.1(3.73)^t + 98.9(1.07)^t$. In time Y_{t+1}/Y_t will approach 3.73.

and various types of monetary systems. The monetary systems to be considered are classified in terms of the monetary changes which can take place. Monetary changes are changes in either the velocity of circulation or the quantity of money. Therefore we will consider the following alternative monetary systems: (A) neither velocity nor quantity changes; (B) only velocity changes; (C) only quantity changes; (D) both velocity and quantity change.[7] The first two monetary systems will be considered in this section, the last two in the next section.

Except in the first monetary system, we assume that there exists a fractional reserve banking system. The money supply is changed by either the creation of deposits in exchange for business firms' debts or the destruction of deposits by business firms' repayment of bank debt. That is, the banking system is a commercial banking system rather than one that deals in government and other securities.[8] In all that follows the central bank's relations with the commercial banks are integrated into the "monetary system." For example, an infinitely elastic money supply can be achieved by a central bank lending to commercial banks, or by a central bank purchasing open market paper. Also in a monetary system we include the specialized financial intermediaries.

The income velocity of money and the liquidity preference relation can be characterized as mirror images of each other.[9] When income velocity rises, the liquidity of the economy falls and vice versa. A useful construction is to assume that for each level of money income Y, there exists a minimum quantity of money M_T which is necessary to sustain the volume of payments associated with Y. If M_T is the total quantity of money in existence then there is no money available for portfolio use; we have a maximum income velocity of money V_m for

[7] Cases A and B, where the quantity of money is constant, may be thought of as worlds of 100 per cent money. If at the "initial point" excess liquidity exists, so that velocity can increase, it is Case B, otherwise it is Case A. Case C(1), where the money supply is infinitely elastic, is a world of a paper-money authority which ignores price-level considerations (perhaps a world in which the central bank follows a "needs of business" rule). Case C(2), where the quantity of money has an exogenously determined rate of growth, is a gold-standard world where gold production is autonomous and determines the rate of growth of the money supply. Case D of course is similar to the existing monetary system.

[8] Some of the differences between the classical quantity theory of money and the Keynesian liquidity preference theory of money can be imputed to the way in which the banking system is assumed to operate. The quantity theory approach is consistent with bank lending to business (commercial banking) whereas the liquidity preference theory follows from banks purchasing securities on the open market. In commercial banking an increase in the quantity of money enables a business firm to effect a decision to purchase goods and services. On the other hand, open-market operations substitute money for another asset in the portfolios of the public, and whether or not purchases of goods and services result depends upon the reaction of the public to this change in liquidity.

[9] A. C. Pigou, *Keynes's General Theory* (London, 1951); H. S. Ellis, "Some Fundamentals in the Theory of Velocity," *Quart. Jour. Econ.*, May 1938, LII, 431-72.

each Y, so that $M_T \cdot V_m = Y$. If M is greater than M_T then the actual velocity, V, is less than V_m. The difference between M and M_T is M_L, the amount of money which is held as a liquid asset. If the quantity of money is constant, portfolio money M_L must fall when V rises.

If $V < V_m$ then $M_L > 0$. Abstracting from changes in the quantity of money, with $M_L > 0$, the interest rate is determined by the demand curve for investment, *ex ante* saving, and the terms upon which holders of liquidity are willing to substitute earning assets for money. Similarly, if $M_L = 0$, then the interest rate is determined by the demand for investment, the supply of saving and the terms upon which individuals are willing to hold cash as an asset. With a given money supply in excess of M_T there exists a rate of interest at which households and business firms as a whole are not willing either to increase or to decrease their holdings of money. Any other market interest rate involves either an increase in cash balances so that savings are utilized to increase liquidity, or a decrease in cash balances so that investment is financed from the reservoir of purchasing power. It is assumed that changes in the market rate of interest will affect the amount of investment induced by a given change in income.

Assume that all investment is made by business firms. On a consolidated balance sheet of all firms, investment is represented by an increase in plant, equipment or work in progress, and it will be offset by an increase in liabilities (equity or debt) or a decrease in other assets (cash or liquid assets). Business investment can be equity-financed as a result of either *ex ante* saving by households and firms or a decrease in the cash balances of households. Business investment can be debt-financed as a result of *ex ante* saving by households, a decrease in households' cash balances or by an increase in bank debt of business firms. The financing of investment by a decrease in the cash (liquid assets) balances of firms does not affect either the debt or the equity liabilities of firms: it only makes firms less liquid.

Whereas *ex ante* saving and decreases in the liquidity of households can be used for either debt or equity financing of investment, increases in the quantity of money can be used only for the debt financing of investment. Households, business firms, and banks are sensitive to the composition of the balance sheets of firms; in particular an increase in the ratio of debt to equity or a decrease in the ratio of cash to other assets in firms' balance sheets will make business firms less willing to borrow and households and banks less willing to lend. Hence if investment is financed in such a way as either to increase the ratio of debt to total liabilities or to decrease the liquidity of business firms, the amount of investment induced by a given change in income will fall. The value of the accelerator coefficient therefore depends upon

two variables, the market rate of interest and the structure of the balance sheets of firms. Changes in these variables can dampen what otherwise would be an explosive movement of income.

A. *Neither Velocity nor Quantity Changes*

Using the Swedish concepts,[10] we define $Y_{t-1} - C_t = (1 - \alpha)Y_{t-1}$ as *ex ante* saving. Assuming, as pure accelerator-multiplier models do, that all of investment is induced, then $I_t = \beta(Y_{t-1} - Y_{t-2})$ is identified as *ex ante* investment. From equations (1)-(3), it follows that for $Y_t \geq Y_{t-1}$ it is necessary that $I_t = \beta(Y_{t-1} - Y_{t-2}) \geq (1 - \alpha)Y_{t-1}$, for $Y_t < Y_{t-1}$ it is necessary that $I_t = \beta(Y_{t-1} - Y_{t-2}) < (1 - \alpha)Y_{t-1}$.

With a monetary system in which neither the velocity of circulation nor the quantity of money changes, if *ex ante* investment is greater than *ex ante* saving, the *ex ante* saving has to be rationed among investors, and the market in which this rationing takes place is the money market. The excess of demand over supply results in a rise in interest rates, which will continue until realized investment is equal to *ex ante* saving. In Figure 1, *ex ante* investment is based upon the

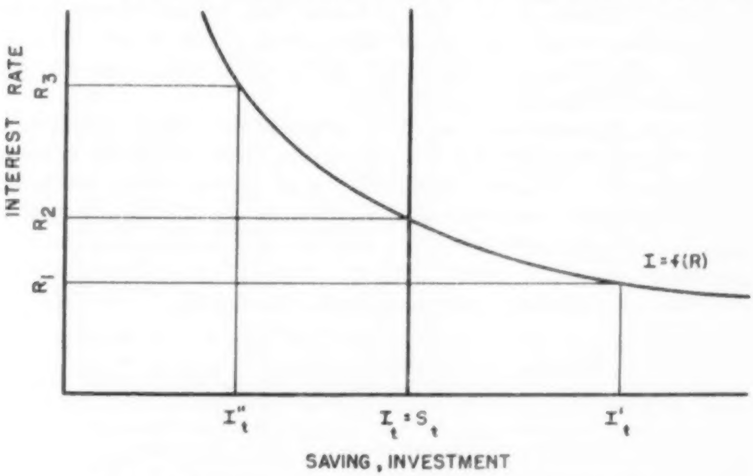

FIGURE 1. RECONCILIATION OF EX ANTE SAVING AND INVESTMENT

rate R_1 so that $\beta(Y_{t-1} - Y_{t-2}) = I_t'$. The inability to finance more than I_t $(=S_t)$ of investment results in a rise in the interest rate to R_2. Such a monetary system leaves no room for an accelerator-multiplier cycle. A necessary condition for the functioning of an accelerator

[10] B. Ohlin, "Some Notes on the Stockholm Theory of Savings and Investment," *Econ. Jour.*, Mar. and June 1937, XLVII, 53-69 and 221-40. Reprinted in American Economic Association, *Readings in Business Cycle Theory* (Philadelphia, 1951), pp. 87-130.

process during an expansion is that a source of financing of investment in addition to *ex ante* saving should exist.[11]

Symmetrically, if *ex ante* saving is greater than *ex ante* investment then an increase in investment is forced so that all of the available financing is absorbed by real investment. If there exists no way in which savings can be utilized other than in investment, then the terms upon which firms can finance investment must change so that realized investment is greater than *ex ante* investment. This equality of *ex ante* saving and realized investment stabilizes income, thereby halting the "inducement to disinvest."

B. *Only Velocity Changes*

With a constant money supply, realized investment can differ from *ex ante* saving only if the velocity of circulation of money changes. We will first take up the purely mechanical implications of the existence of a floor and a ceiling to velocity. We will then consider the effects on the value of the accelerator coefficient of changes in velocity when no excess liquidity exists and when excess liquidity exists (the Keynesian liquidity trap). To the extent that a fixed money supply and a ceiling to velocity set an upper limit to the money value of income, secular growth requires a falling price level, and this has implications for the accelerator process.

We have assumed that the interest rate and the balance-sheet structure of firms (liquidity and the debt-equity ratio) affect the value of the accelerator coefficient. The financing of investment by absorbing idle cash balances does not necessarily change the debt-equity ratio of business firms, for we can assume that the debt-equity preferences of households are not strikingly different when *ex ante* saving and when idle cash balances are used to finance investment.[12] Therefore the

[11] A fall in the price level of investment goods may result in S_1 of monetary savings being sufficient to finance I_1 of real investment. Conversely a rise in the price level of investment goods will lower the amount of real investment that a given amount of money savings can finance. In Figure 1 the savings curve can be read as a supply curve and the investment curve as the demand curve (with respect to price) for investment goods at a fixed interest rate. Then reading R_2 and R_1 as price levels, the accelerator phenomenon determines the price level of investment goods. This interpretation of Figure 1 must be what a writer who uses a ceiling to investment-goods production in his models has in mind (for example, Goodwin, *op. cit.*). In the original interpretation of Figure 1, even if I_1' of investment is financed, the supply conditions of investment goods (with respect to price) may be such that spending I_1' on investment goods results in a rise in the price of investment goods; as indicated earlier the accelerator process can lead to a rising price level.

[12] J. G. Gurley and E. S. Shaw, "Financial Aspects of Economic Development," *Am. Econ. Rev.*, Sept. 1955, XLV, 515-38, discuss the effect of available assets on saving behavior. It may be true that the asset preferences of households when using cash balances are different from their preferences when using *ex ante* saving to finance firms. In this connection, the legal and traditional limitations on the portfolios of financial intermediaries no doubt tend to affect business investment.

balance sheets of investing firms do not deteriorate during an expansion financed by increasing velocity. Of course the liquidity of households and firms is reduced but, unless the liquidity trap is operative, this is reflected in the interest rate. Therefore in this section only the interest rate and, in the liquidity-trap situation, the changes in liquidity at a constant interest rate can affect the accelerator coefficient.

Assume that a cumulative rise in income is set off. This increases the quantity of money needed for transaction purposes and, therefore, as the process continues there are progressively smaller asset holdings of money which can be used to finance investment in excess of *ex ante* saving. The highest attainable level of money income is that level at which all of the available money supply is required for transactions (see Table I). At that income realized investment cannot exceed *ex ante* saving. Realized investment equal to *ex ante* saving results in a constant income which, given the accelerator assumption, induces zero investment. Ignoring any effects that the interest-rate and balance-sheet changes accompanying velocity increases have upon the accelerator coefficient, a monetary system with a constant quantity of money may impose a ceiling to money income. This ceiling is not determined by full employment or by the capacity of the investment goods industries; it is determined by the limited ability of changes in velocity to finance investment.

TABLE I.—ONLY VELOCITY CHANGES

(Constant Money Supply—No Interest-Rate Effects)

Time	Accelerator Process $\alpha=.8$, $\beta=4.0$ $Y_0=100$, $Y_1=110$					Monetary System Money Supply=100 Maximum Velocity=2	
	Y	C	Savings *Ex Ante*	Investment		Investment Financed by ΔV[a]	Realized Velocity
				Ex Ante	Realized		
0	100	—	—	—	—	—	1.00
1	110	80	20	—	30	10	1.10
2	128	88	22	40	40	18	1.28
3	174	102	26	72	72	46	1.74
4	200	139	35	184	61	26	2.00
5	200	160	40	104	40	0	2.00
6	160	160	40	0	0	−40	1.60

[a] Investment in excess of *ex ante* saving. Obviously negative investment financed by ΔV means that *ex ante* saving is greater than investment.

Symmetrically if a minimum velocity exists, a floor to money income exists. However the floor is not entirely symmetrical with the ceiling, and in this paper the lower turning point is essentially unexplained.

Let us examine what would be happening in the money market

during a process such as is detailed in Table I. Ignoring the liquidity trap, a rise in transaction money as income rises means that with a constant money supply portfolio money becomes scarcer. The interest rate at which cash can be withdrawn from portfolios into the income stream rises as asset money is used to finance investment in excess of saving. With a fixed quantity of money and a rise in income, the balance sheets of households and firms show a smaller ratio of asset cash to total assets, liquidity decreases. The decrease in liquidity and the rise in the interest rate both tend to decrease the accelerator coefficient.

Alternatively, on the downswing *ex ante* investment is smaller than *ex ante* saving. With a constant money supply, this excess saving is

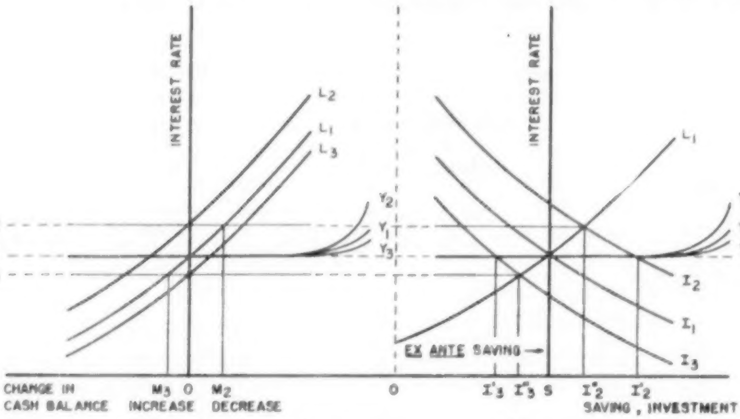

FIGURE 2. SAVING, INVESTMENT, AND CASH BALANCES

absorbed by a reduction in velocity. Money available for asset purposes increases as it is withdrawn from the income stream. The interest rate falls and the liquidity of the community rises so that the amount of disinvestment induced by the given downward shift in demand decreases. Both on the upswing and the downswing, the monetary system which is based solely upon changes in velocity acts as a stabilizer of realized induced investment unless the fall in income is so great that the money released from transaction purposes lowers the interest rate to the floor interest rate of the liquidity trap. At this interest rate the stabilizing effect upon aggregate disinvestment of the fall in financing terms will cease, although increasing liquidity can continue to act as a stabilizer.[13]

Figure 2 illustrates the use of cash balances to finance investment

[13] Increasing liquidity raising the consumption coefficient is of course the "Pigou effect."

and to offset *ex ante* saving. At the interest rate R_1, and income Y_0, the velocity of circulation of money remains constant. This is illustrated by the L_1 curve intersecting the zero change in cash balances line at R_1. At higher interest rates cash assets would be freed to finance investment; at lower interest rates saving would be absorbed by cash balances. The amount of investment which can be financed at any interest rate is equal to the sum of *ex ante* saving and the change in cash balances. Assume that income rises so that at the interest rate R_1, I_2' of investment is induced. The I_2 curve illustrates how the value of the accelerator would be changed by a change in interest rates. The excess of demand over the supply of finance results in a rise of the interest rate to R_2. As I_2'' is greater than *ex ante* saving, income will rise and the transaction demand for cash will increase. This will raise the schedule relating the change in cash balances to the interest rate to L_2, so that the interest rate at which investment will be financed by a fall in liquidity will be higher.

If a fall in income shifts the investment demand curve to I_3, *ex ante* investment is I_3'. With a constant money supply the excess of *ex ante* saving over induced investment will depress the interest rate, and realized investment will be $I_3'' > I_3'$, OM_3 being added to cash balances. As $S > I_3''$ income will fall, and this will shift the liquidity curve downward so that cash balances can be used to finance investment at an interest rate lower than R_1.

If the cash balance-interest rate relation is as the Y_3, Y_2 and Y_1 set of curves indicate, then excess liquidity exists; this is the Keynesian liquidity trap situation. With an investment curve I_2, $I_2' - S$ of investment will be financed by a decrease in cash balances; and if the investment curve is I_3, $S - I_3'$ will be added to cash balances. In both cases no change in interest rates will occur. In the Keynesian liquidity trap situation the money market damps down neither the "boom" nor the "bust." On the boom side, the liquidity trap will exist until the need of cash for transactions absorbs a sufficiently large portion of the money supply so that the Keynesian liquidity trap comes to an end. There is no endogenous limiting factor to the liquidity trap on the downswing aside from the effect that improved liquidity has upon firms' balance sheets. Therefore the Keynesian liquidity trap situation allows full scope to an explosive accelerator coefficient. And in the upswing, an explosive accelerator process will generate greater increases in money demand than the increases in productive capacity, so that a strong accelerator in combination with excess liquidity will generate large price increases.

Either the ceiling to velocity or the effect of rising interest rates and decline in liquidity upon the accelerator coefficient will break the

cumulative expansion. A fall in money income will occur. The quantity of money needed for transactions falls, and *ex ante* saving which is not realized in investment will result in the addition of money to portfolios. If the price level does not fall during a depression the ceiling real income remains fixed, while if the price level falls, even though the ceiling money income remains fixed, the ceiling real income rises.

Net investment implies an increase in productive capacity. With a constant money supply and in effect a ceiling to velocity, larger real incomes can be realized only if the price level falls. To the extent that the accelerator inducement to invest is large only when income is approximately equal to productive capacity, strong expansions can only occur if the price level falls secularly .

The effect of the expectation that in the long run the price level will fall is to increase the expected pay-off period of an investment. This is equivalent, in its effect upon investment by firms, to a rise in interest rates with a constant price level, so that a falling price level will tend to lower the value of the accelerator coefficient. Therefore the business cycle will be characterized by weaker booms than would occur with a permissive monetary system. Such a monetary system will be associated with a tendency toward relatively stable income for, unless liquidity is greatly increased during a downswing, long periods in which realized investment exceeds *ex ante* saving cannot occur.

III. *The Accelerator Model with Quantity of Money Variable*

In this section we will consider two monetary systems, those in which only the quantity of money can change and those in which both the quantity of money and its velocity can change.

We assume that commercial banks create money by lending to business firms. The maximum realized increase in the money supply is equal to the difference between *ex ante* investment and *ex ante* saving:

$$\Delta M = ex\ ante\ I - ex\ ante\ S = \Delta Y$$

Assume that $V = \frac{Y}{M} = \frac{\Delta Y}{\Delta M} = 1$. The increase in the money supply in the hands of households is the asset which makes the change in net worth equal to *ex ante* investment.[14] As income velocity is 1, there will

[14] Assume that *ex ante* $I >$ *ex ante* S, realized $I =$ *ex ante* I; also that (*ex ante* $I -$ *ex ante* S) is financed by an increase in bank debt. The changes in the consolidated balance sheets of households, business firms and banks will be:

Households

Debt and Equity of Firms	+(*ex ante* S)	Net Worth	+(*ex ante* I)
Demand Deposits	+(*ex ante* $I -$ *ex ante* S)		

be no net change in the quantity of money that individuals hold as assets. This is equivalent to assuming that the interest rate at which banks lend to business is the interest rate at which money and earning assets are substituted in household portfolios.[15] The only relevant monetary change in these models is in the quantity of money.

When the money supply increases at an independently given rate, the autonomous increase in the money supply is not necessarily equal to the difference between *ex ante* investment and *ex ante* saving. If the increase in the money supply is greater than the difference between *ex ante* investment and *ex ante* saving we assume that this difference accumulates in the banking system (as excess reserves) and can be used to finance future investment. If the increase in the money supply is less than the difference between *ex ante* investment and *ex ante* saving, realized investment will be less than *ex ante* investment and the increase in income will be equal to the increase in the money supply.

For each monetary system we will first investigate the mechanical properties of these relations, assuming that the accelerator coefficient does not change, and then investigate the possible effects of the associated money market and financing developments upon the value of the accelerator coefficient.

A. *Quantity Changes but Not Velocity*

Two monetary systems in which only the quantity of money can change will be taken up. In the first, the money supply will be assumed to be infinitely elastic, and in the second the money supply will be assumed to increase at a fixed arithmetic or geometric rate.

1. *Infinitely elastic money supply.* If the quantity of money can increase without limit then no matter what the difference between *ex ante* investment and *ex ante* saving, the difference can be financed. Also we can assume that the terms upon which the banking system

Firms

Productive Assets	+ (*ex ante I*)	Debt and Equity to Households	+ (*ex ante S*)
Demand Deposits	(no change)	Debts to Banks	+ (*ex ante I* − *ex ante S*)

Banks

Debts of Firms	+ (*ex ante I* − *ex ante S*)	Demand Deposits	+ (*ex ante I* − *ex ante S*)

[15] Alternatively if the liquidity-trap rate of interest rules, even if $V > 1$, the rise in the quantity of money in excess of transaction needs can all be absorbed by households' portfolios without lowering the interest rate. However, in this case any rise (virtual) in the interest rate would imply a substitution of earning assets for money in the portfolios of households. This then becomes a case of financing investment from cash balances. If $V > 1$ the money supply and firms' debts to banks do not increase as rapidly as income.

lends do not change. Such a monetary system is consistent with the existence of an explosive accelerator process since it permits a cumulative rise in money income. Is there anything inherent in the operations of such a monetary system which will lead to a dampening of the accelerator process? (We will ignore the political repercussions of the cumulative rise in prices which is implicit in a full-employment situation in which the rate of growth of money income is greater than that of productive capacity.)

TABLE II.—INFINITELY ELASTIC MONEY SUPPLY
(Constant Velocity—No Interest-Rate Effects)

Time	Accelerator Process $\alpha=.8$ $\beta=4$ $Y_0=100$					Monetary System All *ex ante* S used for equity financing. All increases in money used for debt financing.	
	Y	C	Savings *Ex Ante*	Investment: *Ex Ante* $\beta(Y_{t-1}-Y_{t-2})$	Investment: Realized	Δ Money Supply	ΔEquity Financing / ΔTotal Investment
0	100.	—	—	—	—	—	—
1	110.	80.	20.	—	30.	10.	.67
2	128.	88.	22.	40.	40.	18.	.55
3	174.	102.	26.	72.	72.	46.	.36
4	323.	139.	35.	184.	184.	149.	.19

During an expansion, the increase in money supply occurs as investing firms add bank debt to their liabilities (see Table II). Assuming that the percentage distribution of *ex ante* saving between debt and equities of business firms is constant, a cumulative explosive expansion on the basis of the creation of money will (*ceteris paribus*) result in a fall in the ratio of equity to debt in the balance sheet of firms.[16] Even if the terms upon which firms can borrow are unchanged by the

[16] Total induced investment is $\beta(Y_t - Y_{t-1})$. *Ex ante* saving is equal to $(1-\alpha)Y_t$. Assuming that a constant proportion of *ex ante* saving is used for equity financing, the latter is $\lambda(1-\alpha)Y_t$. The ratio of the change in equity to total investment, therefore is:

$$\frac{\lambda(1-\alpha)Y_t}{\beta(Y_t - Y_{t-1})} = \frac{\lambda(1-\alpha)}{\beta\left(1 - \frac{Y_{t-1}}{Y_t}\right)}$$

The general solution to the second-order explosive accelerator process is of the form $Y_t = A_1\mu_1^t + A_2\mu_2^t$ where $\mu_1 > \mu_2 > 1$. Therefore, we can write:

$$\frac{Y_{t-1}}{Y_t} = \frac{A_1\mu_1^{t-1} + A_2\mu_2^{t-1}}{A_1\mu_1^t + A_2\mu_2^t} = \frac{1 + \frac{A_2}{A_1}\left(\frac{\mu_2}{\mu_1}\right)^{t-1}}{\mu_1 + \left(\frac{A_2}{A_1}\right)\left(\frac{\mu_2}{\mu_1}\right)^{t-1}\mu_2}$$

deterioration of their balance sheets, borrowers' risk will rise.[17] This will lower the amount of investment induced by a given rise in income. Hence, even with a monetary system that permits all of *ex ante* investment to be realized, the financing of investment by bank debt can result in lowering the accelerator coefficient which in turn lowers the rate of increase of income. This continues until the accelerator coefficient falls sufficiently to replace the explosive by a cyclical time series, in which there eventually occurs a fall in income. With a fall in income, the excess of *ex ante* saving over induced investment will be utilized to reduce bank debt. Also, the failure of some firms which have relied heavily upon debt financing will result in the substitution of equity for debt in balance sheets. Both changes during the downswing raise the ratio of equity to debt in firms' balance sheets[18] which acts as a

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The limit of $\left(\frac{\mu_2}{\mu_1}\right)^t_{t\to\infty} = 0$, therefore the limit of $\left(\frac{Y_{t-1}}{Y_t}\right)_{t\to\infty}$ is $\frac{1}{\mu_1}$.

Hence $\frac{\lambda(1-\alpha)Y_t}{\beta(Y_t - Y_{t-1})}$ approaches as a limit $\frac{\lambda(1-\alpha)}{\beta\left(1-\frac{1}{\mu_1}\right)}$.

In the early stages of an explosive accelerator process the ratio of $\frac{Y_{t-1}}{Y_t} > \frac{1}{\mu_1}$. Therefore, the ratio of equity financing to total investment decreases as the accelerator process continues.

[17] M. Kalecki, "The Principle of Increasing Risk," *Economica*, N. S., Nov. 1937, IV, 440-47.

[18] On the downswing (*ex ante* $S >$ *ex ante* I), the balance sheets of the three sectors change as follows:

Banks

Business Debt	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$	Demand Deposits	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$

Firms

Capital Equipment	$+$*ex ante* I	Debt and Equities to Households	$+$*ex ante* S
		Debt to Banks	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$

Households

Demand Deposits	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$	Net Worth	$+$*ex ante* I
Business Assets	$+$*ex ante* S		

If failures occur in the account of households labeled Business Assets, equities will be substituted for debt and in the account of business firms labeled Debt and Equities to Households, equity will be substituted for debt. Also as business firms fail banks acquire titles and debts which are considered unsuitable for bank portfolios. The sale of such assets to the public results in the substitution of business assets for demand deposits in

stabilizer. The endogenous limits to an explosive accelerator process, in the absence of restrictions on the money supply, are the deterioration of firms' balance sheets due to debt-financing of investment on the upswing; and the reverse circumstances during the liquidation process on the downswing.

Two possible offsetting factors to the increasing debt-equity ratio in the financing of investment during an explosive expansion are an increase in the ratio of *ex ante* saving flowing to equities and the capital gains that accompany an increase in the price level of capital goods. As *ex ante* saving finances a decreasing proportion of total investment during an explosive expansion, a possible increase in the proportion of *ex ante* saving flowing to equities cannot for long prevent a deterioration of the balance sheets of firms. If, however, cumulative price-level inflation is politically permissible a deterioration of firms' balance sheets need not occur. Business firms are borrowers and the real burden of a debt decreases with a rise in the price level. If the assets of business firms are valued at their current replacement costs, then the rising price level raises the equity account. Such capital gains improve the balance sheets of firms and they occur generally in an inflation. The price-level rise plus the flow of *ex ante* saving to equity investment may be sufficient to keep the debt-equity ratio constant, thereby preventing any deterioration in the balance sheets of firms. However, this requires an increasing rate of change in the price level of capital goods.[19] Nevertheless, if an explosive inflation is politically

the public portfolios, and in a net reduction of demand deposits. These changes obviously do not affect the net worth of households and the capital equipment accounts. However, as the value of productive capacity may be reduced during a downturn, the value of the capital equipment account of firms and the net worth account of households may be reduced; the equity liabilities of firm and equity assets of households lose a part or all of their value. This in turn can affect the "subjective" preferences of households and firms so that liquidity preference rises.

[19] In the arithmetic example of Table II, in time-period 3, only .36 of the total new investment was financed by savings. If, in period 3, the price level of capital goods rose so that the value of existing capital goods rose by 2.0, then the ratio of the increase in equity to the increase in assets would be .5. In period 4 only .19 of a larger total investment was financed by savings. For the ratio of the increase in equity to the increase in the value of the assets to be .5, the value of existing capital must rise by 11.4. As total assets in period 4 are presumably only slightly larger than in period 3, this implies that the rate of increase in the price level of capital goods must rise if a constant ratio of equity to total assets is to be maintained. For example:

Period	3	4
Saving, *ex ante*	26.0	35.0
I realized	72.0	184.0
Δ money	46.0	149.0
Required Δ value of existing capital	20.0	114.0
Δ equity $= S + \Delta$ value	46.0	149.0
Δ assets $= I$ realized $+ \Delta$ value	92.0	298.0
Ratio of Δ equity to Δ assets	.5	.5

tolerable, there is no endogenous reason why an accelerator process with an infinitely elastic money supply need come to a halt.

Therefore, at least two monetary situations allow full scope to an explosive accelerator process: the Keynesian liquidity trap and an infinitely elastic money supply. It is perhaps no accident that the emphasis upon "real" floors and ceilings as causes of the nonlinearity of the accelerator coefficient occurred at a time when the high volume of government bonds outstanding and their support by central banks made the money supply in fact infinitely elastic. An era of tight money on the other hand naturally leads to an examination of the monetary prerequisites for the operation of the accelerator phenomena.

2. *Money supply increases at a fixed rate.* A monetary system in which the rate of growth of the money supply is exogenously given, for example a fractional reserve banking system based upon a gold standard, is equivalent to an infinitely elastic money supply if the difference between *ex ante* investment and *ex ante* saving does not exceed the per-period growth of the money supply. The only endogenous limitation to expansion in this case comes from the deteriorating balance sheets and liquidity of business firms, as is true with an infinitely elastic money supply. The interesting alternative exists when the difference between induced investment and *ex ante* saving is greater than the rate of growth of the lending ability of banks.

Throughout this section we will assume that at the initial period the banking system does not possess excess liquidity. Hence the available financing is equal to *ex ante* saving plus the possible increase in the money supply. If induced investment is equal to or greater than this, realized investment will be constrained to the available financing. In this case income will grow at the same rate as the money supply.[20]

(a) *Arithmetic rate of increase in the money supply.* If the money supply increases by a fixed amount per period (constant arithmetic rate of increase), income will grow at this rate until *ex ante* saving increases sufficiently so that induced investment per period becomes less than the available financing. When this happens, the per-period increase in income will fall below what it had been, and therefore induced investment will decrease. The downturn occurs when *ex ante* saving catches up with the expansion process so that all of the investment induced by the constant arithmetic rate of growth of income can be realized without using all of the newly available credit.[21] (This case is illustrated in Table III.)

[20] $\beta(Y_t - Y_{t-1}) > (1-\alpha)\, Y_t + \Delta M$ and $Y_t = M_t$; so that $Y_{t+1} = \alpha Y_t + (1-\alpha) Y_t + \Delta M$; $Y_{t+1} = Y_t + \Delta M$.

[21] In an accelerator-multiplier model a necessary condition for $Y_t > Y_{t-1}$ is that $\beta(Y_{t-1} - Y_{t-2}) > (1-\alpha) Y_{t-1}$. We posit an arithmetical increase in the money supply per period of ΔM so

TABLE III.—ARITHMETICALLY INCREASING MONEY SUPPLY
(Constant Velocity—No Interest-Rate Effects)

Time	Accelerator Process $\alpha=.8$ $\beta=4$					Monetary System +10 per time period
	Y	C	Savings *Ex Ante*	Investment: Induced $\beta(Y_{t-1}-Y_{t-2})$	Investment: Realized	Investment Financed by Increased Money Supply
0	100.0	—	—	—	—	—
1	110.0	80.0	20.0	—	30.	+10.0
2	120.0	88.0	22.0	40	32.	+10.0
3	130.0	96.0	24.0	40	34.	+10.0
4	140.0	104.0	26.0	40	36.	+10.0
5	150.0	112.0	28.0	40	38.	+10.0
6	160.0	120.0	30.0	40	40.	+10.0
7	168.0	128.0	32.0	40	40.	+ 8.0
8	166.4	134.4	33.6	32	32.	− 1.6[a]

[a] In time period 7, *ex ante* $S+\Delta M>$ *ex ante* I; therefore $Y_7-Y_6<\Delta M$. As a result, in time period 8 the accelerator expansion is broken.

During the expansion, the demand for financing is always greater than the available supply; the money market constrains investment. When the arithmetic increase in income becomes less than the increase in the money supply financing conditions ease. The resulting decline in the rate of interest may act to increase the inducement to invest (decrease the inducement to disinvest); this possibility is ignored in Table III. Since the banking system finances a decreasing proportion of realized investment during the expansion, the deterioration of the balance sheets of investing firms will be limited during such an expansion.

When income declines, the autonomous increases in the money supply result in an accumulation of excess reserves in the banking system, and *ex ante* saving in excess of induced investment results in a repayment of bank debt by firms. These changes should brake the decline in income.

The accumulation of excess reserves by banks and the improved balance sheets of firms during the downswing implies that if an expan-

that the available financing is $(1-\alpha)Y_{t-1}+\Delta M$: hence if $\beta(Y_{t-1}-Y_{t-2})\geqq(1-\alpha)Y_{t-1}+\Delta M$ then realized investment is $(1-\alpha)Y_{t-1}+\Delta M$. Hence $Y_t=Y_{t-1}+\Delta M$ so that $\beta(Y_t-Y_{t+1})=\beta\Delta M$ which we once again assume $>(1-\alpha)(Y_{t-1}+\Delta M)$ so that $Y_{t+1}=Y_{t-1}+2\Delta M$. Eventually $\beta(Y_{t+n}-Y_{t+n-1})=\beta\Delta M<(1-\alpha)(Y_{t-1}+n\Delta M)+\Delta M$; so that $Y_{t+n+1}<Y_{t+n}+\Delta M$; therefore $\beta(Y_{t+n+1}-Y_{t+n})<\beta(Y_{t+n}-Y_{t+n-1})$ and the accelerator process turns down.

sion begins it will not at once be constrained by the money-market and balance-sheet effects. If the arithmetic rate of growth of the money supply is small compared to the accumulation of financing ability during the decline in income, a sharp fall in investment will occur at the date that the accumulated financing ability is absorbed, thereby decreasing the per-period increase in income. The smaller increase in income will lead to a fall in induced investment, and a sharp fall in income may occur. A constant arithmetic rate of increase of the money supply in conjunction with an explosive accelerator process will tend to generate a cyclical time series.

(b) *Geometric rate of increase in the money supply.* Consider a money supply that increases at a constant geometric rate, μ_3. As was noted earlier the solution of an explosive accelerator process can be written as $Y_t = A_1\mu_1{}^t + A_2\mu_2{}^t$ with $\mu_1 > \mu_2 > 1$ with A_1 and A_2 depending upon the initial conditions. That is, the rate of growth of income is a weighted average of the two rates of growth μ_1 and μ_2. If μ_3, the rate of growth of the money supply, is greater than (or equal to) μ_1, the greatest rate of growth that income can achieve, the system behaves as if the money supply were infinitely elastic. Hence the cases that have to be examined are when $\mu_1 > \mu_2 > \mu_3 > 1$ and when $\mu_1 > \mu_3 > \mu_2 > 1$.

Take first the case in which $\mu_1 > \mu_2 > \mu_3 > 1$. With no excess liquidity, the maximum attainable rate of growth of income is the rate of growth of the money supply. To sustain this rate of growth, it is necessary that induced investment be equal to or greater than the available financing. When the rate of growth of the money supply, and therefore the rate of growth of income, is less than μ_2 induced investment will not be large enough to absorb the available financing.[22] The rate of growth of income will be smaller than the rate of growth of the money supply, and this new smaller rate of growth of income also will not be sustained. These progressively smaller rates of growth of income

[22] Assume $M_{t-1} = Y_{t-1}$ and $M_t = Y_t = \mu_3 M_{t-1} = \mu_3 Y_{t-1}$.

$$\beta(\mu_3 - 1)Y_{t-1} - [(1-\alpha)\mu_3 Y_{t-1} + (\mu_3 - 1)\mu_3 M_{t-1}] \geq 0$$

is necessary for $Y_{t+1} = \mu_3 Y_t$. Therefore $\beta(\mu_3 - 1) - (1-\alpha)\mu_3 - (\mu_3 - 1)\mu_3 - \epsilon = 0$, so that $\mu_3^2 - (\alpha+\beta)\mu_3 + \beta + \epsilon = 0$. It follows that

$$\mu_3 = \frac{\alpha + \beta \pm \sqrt{(\alpha+\beta)^2 - 4(\beta+\epsilon)}}{2}.$$

The relevant root is

$$\mu_3 = \frac{\alpha + \beta - \sqrt{(\alpha+\beta)^2 - 4(\beta+\epsilon)}}{2}$$

and if $\epsilon = 0$ (induced investment is equal to *ex ante* saving plus the increase in the money supply), $\mu_3 = \mu_2$; if $\epsilon > 0$ (induced investment greater than *ex ante* saving plus the increase in the money supply) $\mu_3 > \mu_2$. Therefore a rate of growth of the money supply equal to or greater than the smaller root of the accelerator process is a necessary condition for self-sustained growth.

will in time result in insufficient induced investment to offset *ex ante* saving and at this date income will fall. Therefore, if the rate of growth of the money supply is smaller than the smallest rate of growth that the accelerator process, if unconstrained, would generate, an upper turning point in income will be produced.[23]

The argument as to what happens once income turns down for a geometric rate of increase in the money supply is essentially the same as for an arithmetic increase in the money supply. Excess reserves accumulate in the banking system and firms' balance sheets improve during the downward movement. Once a sufficient upward movement again begins, an unconstrained expansion can take place until the excess liquidity is absorbed, at which time the rate of growth of the money supply will again constrain the rate of growth of income. A money supply growing at "too small" a rate will lead to a cyclical rather than a steady-growth time series.

If the rate of growth of the money supply is equal to the smaller root of the accelerator process (*i.e.*, $\mu_3 = \mu_2$), both income and the money supply will grow at this rate. Throughout this process the ratio of *ex ante* saving to bank financing of investment will be constant. If this ratio is consistent with the balance-sheet goals, there is nothing in this process which would lead to a downturn in income. Also this rate of growth of income may be consistent with a fairly stable price level. Steady growth may result from combining an explosive accelerator process and an appropriately increasing money supply.[24]

Consider now the second case, in which $\mu_1 > \mu_3 > \mu_2 > 1$. In this case the rate of growth of income during any time period will depend upon the weight of the two roots. If the weight of μ_2 is high, then the accelerator process will generate a rate of growth of income less than the rate of growth of the money supply. However, since $\mu_1 > \mu_2$, in time μ_1 will dominate the rate of growth of income so that income will be increasing faster than the money supply. The money supply does not constrain the growth of income until the total growth of income equals

[23] This can be demonstrated by noting that $Y_0 = A_1 + A_2$ and $Y_1 = A_1\mu_1 + A_2\mu_2$ and given that $\mu_1 > \mu_2 > \mu_3 > 0$ and $Y_1 = \mu_3 Y_0$ then $A_1 = Y_0 - A_2$; $\mu_3 Y_0 = (Y_0 - A_2)\mu_1 + A_2\mu_2$ so that

$$\frac{Y_0(\mu_3 - \mu_1)}{\mu_2 - \mu_1} = A_2.$$

As $Y_0 > 0$, $\mu_3 - \mu_1 < 0$ and $\mu_2 - \mu_1 < 0$, $A_2 > 0$.

Also $A_2 = Y_0 - A_1$, $\mu_3 Y_0 = A_1\mu_1 + (Y_0 - A_1)\mu_2$ so that

$$\frac{Y_0(\mu_3 - \mu_2)}{\mu_1 - \mu_2} = A_1.$$

As $Y_0 > 0$, $\mu_3 - \mu_2 < 0$ and $\mu_1 - \mu_2 > 0$, $A_1 < 0$.

A_1 the coefficient of the dominant root μ_1 is negative. As $A_1\mu_1 + A_2\mu_2 > A_1 + A_2$ and $\mu_1 > \mu_2$ it follows that $|A_2| > |A_1|$. However in time $A_1\mu_1^t + A_2\mu_2^t$ will be <0, so income must turn down.

[24] That is, the Harrod-Domar case of steady growth can be the result of appropriate monetary conditions.

the total growth of the money supply. Whether this case results in steady growth or in a downturn of income depends upon what happens to the accelerator coefficient once the monetary constraint becomes effective.

At the beginning of such an explosive expansion the rate of growth of income is less than the rate of growth of the money supply. At the date when the total growth of income becomes equal to the total growth of the money supply the rate of growth of income will be greater than the rate of growth of the money supply. Therefore at some intermediate date, the rate of growth of income will be the same as the rate of growth of the money supply. This rate of growth of income will induce sufficient investment, at the financing terms and balance sheets ruling, for the rate of growth of income to increase. Therefore if the rate of growth of income is constrained to the rate of growth of the money supply, and the accelerator coefficient does not change, a sufficient amount of investment will be induced to generate a rate of growth of income greater than the rate of growth of the money supply.

However until the increase in income and in the money supply becomes equal, this system operates with excess liquidity. At the date that the excess liquidity is absorbed, the rate of growth of income will be greater than the rate of growth of the money supply so that when the monetary constraint becomes effective two things will occur: the rate of growth of income will fall and financing terms will rise. When financing terms were relatively easy because of excess liquidity a rate of growth of income equal to the rate of growth of the money supply induced sufficient investment to increase the rate of growth of income. However in a suddenly tight money market financing terms may so change that the accelerator coefficient will fall, and this can lead to a fall in income.

Nevertheless, if the money supply is growing at a geometric rate greater than the smaller root of the accelerator process, a constant rate of growth of income may be generated. In this case money income will grow at a faster rate than if the money supply grew at the rate given by the smaller root. Hence such a steady rate of growth of income can be associated with a substantial rate of increase in the price level. In addition, the ratio of bank financing to *ex ante* saving increases as the rate of growth of the money supply increases.

If the accelerator falls as a result of the tightening of the money market, income can turn down. The behavior of the economy with this monetary system on the downturn and on subsequent expansions would be essentially the same as in the previous case where the rate of growth of the money supply was smaller than the smaller root of the accelerator process.

B. *Both Velocity and Quantity Change*

The earlier consideration of the interaction of an otherwise explosive accelerator-multiplier process with monetary systems in which only changes in velocity and changes in the quantity of money can occur enables us to consider monetary systems in which both quantity and velocity of money can change. We first assume that the quantity of money is changing but that velocity is greater than 1, we then consider the effects of changing velocity. Finally we take up changes in liquidity preference.

1. In the cases where investment in excess of *ex ante* saving is financed by an increase in the quantity of money, we assumed that the income velocity of money was 1. We can now drop this assumption. If income velocity is greater than 1, and if an excess of *ex ante* investment over *ex ante* saving is financed by an increase in the quantity of money, then excess liquidity results. This excess liquidity can be utilized to finance investment.

Assume that the excess liquidity resulting from an investment initially financed by the banks is used to substitute business debt or equities to the public for business debt to banks. If $\Delta M = Y_t - Y_{t-1}$ and $V > 1$, then new transaction cash is

$$\frac{\Delta M}{V}, \text{ and asset cash is } \Delta M - \frac{\Delta M}{V} = \left(1 - \frac{1}{V}\right)\Delta M.$$

After the public purchases business debts or equities, the net increase in debt to banks is

$$\frac{1}{V}(Y_t - Y_{t-1})$$

and investment is $Y_t - \alpha Y_{t-1}$, therefore:

$$\frac{\Delta\text{Bank Debt}}{\Delta\text{Total Assets}} = \frac{\dfrac{Y_t - Y_{t-1}}{V}}{Y_t - \alpha Y_{t-1}} = \frac{1}{V}\,\frac{Y_t - Y_{t-1}}{Y_t - \alpha Y_{t-1}}$$

As an explosive accelerator process takes hold, the ratio $\dfrac{Y_t - Y_{t-1}}{Y_t - \alpha Y_{t-1}}$ rises and the ratio of the change in bank debt to the change in total assets approaches $\dfrac{1}{V}$. If the public's distribution of *ex ante* saving and excess liquidity between debt and equity assets is constant during an expansion, the balance sheets of business firms deteriorate. As the weight of bank financing is smaller than in the case of unit velocity,

the deterioration will not be so rapid as in the case in which bank creation of money is the sole technique by which investment in excess of *ex ante* saving can be financed. Therefore, the possibility that the deterioration of firms' balance sheets will lower the accelerator coefficient is smaller.

2. Note that in $\frac{1}{V} \frac{Y_t - Y_{t-1}}{Y_t - \alpha Y_{t-1}}$ a rise in velocity decreases the ratio of bank financing to the total change in assets and that a rise in the propensity to consume increases the dependence upon bank financing of investment. Therefore, autonomous or cyclically induced changes in these parameters can change the ratio of debt to equity financing, which can change the accelerator coefficient. In particular a rise in velocity tends to counteract the deterioration of firms' balance sheets in a business-cycle expansion financed by bank creation of money.

3. Autonomous or cyclically induced changes in the liquidity preference relation can change the dependence of an expansion upon changes in the money supply and therefore affect the ratio of bank debt to total assets of firms. If liquidity preference decreases, the excess of investment over *ex ante* saving can be financed by withdrawals from cash balances at lower interest rates than were previously ruling. Such an "autonomous" decrease in liquidity preference can, both by improving financing terms and by decreasing the dependence of business firms upon bank financing, raise the accelerator coefficient. A great stock-market boom, such as in the late 1920's, may be interpreted as reflecting a lowering of liquidity preferences; as a result business expansion could be financed with less reliance upon the banking system than otherwise.

Alternatively, an autonomous rise in liquidity preference may lead to the result that business borrowing from banks will increase the liquidity of households rather than finance investment. That is, a portion of business borrowing from banks ends up as "liquid hoards" of households. Such borrowing by business firms in excess of the difference between *ex ante* saving and realized investment will increase the rapidity with which firms' balance sheets deteriorate. An explosive accelerator process may be broken by such changes in liquidity preference.

Such changes in liquidity preference have been labeled autonomous. There exist plausible mechanisms by which the upward movement of an explosive accelerator process would lead to a fall in liquidity preference. However, there do not exist equally plausible mechanisms by which a rise in liquidity preference can be considered as endoge-

nous during an expansion. During a downswing there exists a plausible mechanism which can raise the liquidity preference of households. This can force a deterioration of firms' balance sheets, and thereby, through its effect upon the accelerator coefficient, a further fall in investment. There does not seem to be any endogenous factor which would lead to a fall in liquidity preference on a downswing. Changes in liquidity preference seem to be destabilizing.

IV. *Policy Implications*

Let us asume that the policy goal is steady growth at a stable price level. The policy measures to be used are monetary policy, which in the language of this paper means to choose a monetary system, and fiscal policy. It has been shown that steady growth requires a money supply that increases at a geometric rate: but that a too rapidly growing money supply results in rapid price inflation and that a too slowly growing money supply results in a downturn of income.

The smallest self-sustaining rate of growth of income is equal to the smaller root of the accelerator process, μ_2. If productive capacity can also grow at this rate, then the policy goal of growth without inflation is attainable. If the rate of growth of income is greater than the maximum possible rate of growth of productive capacity, the policy goal is not attainable. In the latter case, we assume that steady growth accompanied by secular inflation will be chosen in preference to a constant price level and intermittent growth. The policy goal therefore becomes steady growth with a minimum rate of secular inflation.

If the policy-makers prize steady growth and abhor falling income, and if secular inflation is accepted as the price that has to be paid for growth, then the policy-makers would be able to "play it safe" by allowing the actual rate of growth of the money supply to be greater than the minimum self-sustainable rate of growth of income. That is, the policy-makers would accept some unnecessary inflation in order to be on the safe side in maintaining full employment.

For a given consumption coefficient, the greater the rate of growth of the money supply, the greater the ratio of bank debt to debt and equities to households in the balance sheets of firms. Therefore the greater the rate of increase in the money supply, the greater the chance that induced investment will decrease because of the unsatisfactory nature of firms' balance sheets. Two policy measures which can counteract this effect are: (1) an interest rate policy designed to keep velocity greater than one; (2) a fiscal policy designed to increase the money supply without increasing business debt to banks.

It was shown that if income velocity is greater than one and if the money supply is being increased by business borrowing from banks,

the net increase in business borrowing from banks will be smaller than the difference between realized investment and *ex ante* saving. In order to achieve this result bank financing of business must be at a high enough interest rate to keep income velocity greater than one. But the accelerator coefficient also depends upon the interest rate. Thus if the monetary policy designed to keep income velocity greater than one is carried too far the accelerator coefficient will fall and the self-sustained growth will be interrupted.

To keep interest rates at a given level, the central bank must be willing to supply reserves to commercial banks, in response to commercial banks' demands, without limit at a fixed rediscount rate. Therefore the rediscount rate seems the appropriate tool of central bank policy.

Nevertheless if the money supply can increase only by business borrowing from banks, a ratio of debt to equities in business balance sheets can result which will lead to a decline in induced investment. Government deficits financed by borrowing from banks result in an increase in the money supply without any corresponding increase in business debt. If interest rates are such that velocity is greater than one, debts and equities to households will be substituted for debts to banks in the business firms' balance sheets. This is more conducive to steady growth than the situation in which all of the increase in the money supply required for steady growth is created in exchange for business debt. Therefore government deficit financing, even during a period of sustained growth and secularly rising prices, may be desirable in order to maintain the conditions for further growth.

WAGES AND INTEREST: A MODERN DISSECTION OF MARXIAN ECONOMIC MODELS

By PAUL A. SAMUELSON*

Modern economic analysis can throw light on the ancient problems of Ricardo and Marx. Neither of these gave a logically complete description of factor and goods pricing in the simplest case where land is free and where labor and intermediate capital goods applied today produce output after one period of time according to a constant-returns-to-scale production function. I propose to analyze such a simple economy, and then compare it with their formulations.

Just as the utilitarian Bentham was called "Paley without hell-fire," Marx can be classified by the modern theorist as "Ricardo without diminishing returns." The present treatment is part of a longer study of Ricardo-like systems. It makes no attempt to do justice to the many noneconomic and imperfect-competition aspects of Marx's thought, but takes seriously his belief that he was baring the inner workings of competitive capitalism.

Technological Assumptions. Assume two industries. Industry I produces homogeneous physical machines or raw materials called K (for physical capital). Industry II produces homogeneous consumption goods called Y. Production in both industries requires homogeneous labor $L_1 + L_2 = L$ and physical capital $K_1 + K_2 = K$ today, with output appearing one period later. Or:

$$(1) \qquad \begin{array}{ll} K^{t+1} = F(L_1^t, K_1^t) & L_1^t + L_2^t \leqq L^t \\ Y^{t+1} = f(L_2^t, K_2^t) & K_1^t + K_2^t \leqq K^t, \end{array}$$

where the inequalities reflect the fact that one input may be redundant in supply.

Marx is supposed to have thought the production functions F and f in (1) to be of the fixed-coefficient type rather than of the smooth J. B. Clark type. So in this case we can[1] replace the functions of (1)

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[1] For this and other facts about linear programming and modern economic theory, see R. Dorfman, R. M. Solow, and P. A. Samuelson, *Linear Programming and Economic Analysis* (New York, 1957), particularly Ch. 11. It is shown there that the functions F and f can be written in the form:

$$\text{Minimum of } (L_i^t/a_i,\ K_i^t/b_i).$$

by the logically equivalent relations:

$$L_1^t \leqq a_1 K^{t+1} \qquad K_1^t \leqq b_1 K^{t+1}$$
$$L_2^t \leqq a_2 Y^{t+1} \qquad K_2^t \leqq b_2 Y^{t+1},$$

where $(a_1, b_1;\ a_2, b_2)$ are the positive technical production coefficients characterizing the fixed-proportion constant-returns-to-scale production functions.

The system's production possibilities can be summarized by

$$\begin{aligned} a_1K^{t+1} + a_2Y^{t+1} &\leqq L^t \\ b_1K^{t+1} + b_2Y^{t+1} &\leqq K^t. \end{aligned} \tag{2}$$

These relations are portrayed in Figures 1a and 1b. In Figure 1a, the straight lines correspond to the two equations of (2) with inputs L^t and K^t given. The corner A of the production-possibility locus will move northwest or southeast when one of the inputs is increased. Figure 1b shows the equations of (2), but with outputs K^{t+1} and Y^{t+1} specified: if an output rises, the corner A' of society's input-requirement locus $RA'S$ will move northeast.

The relative prices of outputs K^{t+1} and Y^{t+1}, $(p_2/p_1)^{t+1}$, must equal the absolute slope of the NAM locus at the production point actually observed. The relative prices of inputs L^t and K^t, $(w/p_1)^t$, where w is the wage of labor, can be any nonnegative number because the corner A' in Figure 1b can have a straight line of any slope tangent to it.

I. *Stationary Conditions*

Simple Reproduction. Under stationary conditions, or slowly chang-

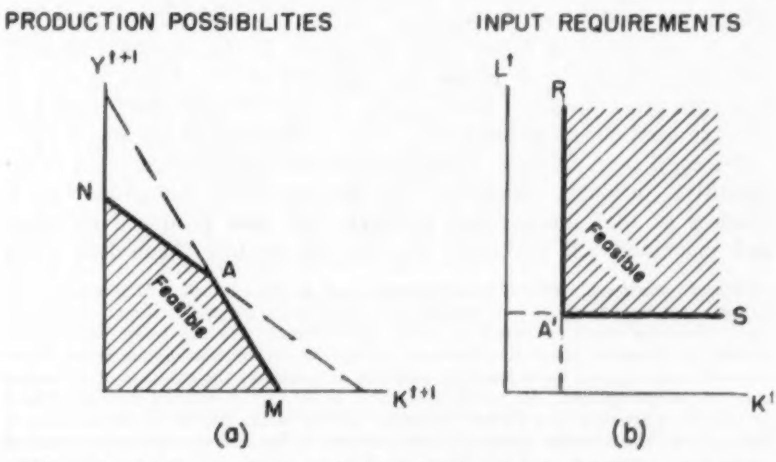

FIGURE 1. *NAM* shows goods producible with given inputs. *RA'S* shows inputs needed to produce specified outputs.

ing conditions, the capital stock K^t will accommodate itself to the supply of labor L^t, which is assumed to be fixed, so that we shall be at a corner A rather than at a point on NA or AM where one of the inputs would be redundant and therefore free. Hence, p_1, w, and p_2 will all be strictly positive. These prices, or their ratios, need not be constant through time but may be slowly changing—probably in a rather predictable way.

The model of "simple reproduction," in which all variables repeat themselves over time, is the natural starting place for an exact analysis. In this case we replace (2) by:

$$L^t = L^{t+1} = \cdots = L$$
$$K^t = K^{t+1} = \cdots = K$$
$$Y^t = Y^{t+1} = \cdots = Y$$

$$\begin{aligned} a_1K + a_2Y &= L \\ b_1K + b_2Y &= K; \end{aligned} \tag{3}$$

or solving, by:

$$\begin{aligned} Y &= \frac{1 - b_1}{a_2(1 - b_1) + a_1b_2} L \\ K &= \frac{b_2}{a_2(1 - b_1) + a_1b_2} L \end{aligned} \tag{4}$$

where labor supply L^t is taken as given at the L level. Being the only factor nonaugmentable in the long run, labor plays a pivotal role: all other magnitudes are proportional to it. The national product NP can be expressed in labor units simply as L; in consumption-good units NP is given by Y in the first equation of (4). Production of K goes into gross product; but K being an intermediate good needed to produce final consumption goods, it is not included in stationary NP.[2]

Prices, Wages, Interest. Though prices and wages are constant under repetitive stationary conditions, this does not mean that production is timeless or that intermediate products just now produced by labor and machines will exchange one for one against themselves when

[2] Ricardo made quite different assumptions about L. He assumed a Malthus-like subsistence wage level at which any number of workers would be produced and reproduced. Such subsistence wages he treated as intermediate product—like hay being fed to horses or coal to furnaces; hence Ricardo's net product would be mine minus wages. Marx assumed actual L used to be less than available L because of the existence of a "reserve army of the unemployed." He would interpret L in (4) then as actual L and would have to add this magnitude as a further unknown variable of the system. A new equation is then needed. The Marxian literature relates the size of the reserve army to labor-saving innovations, depressions, and migration but does not appear to contain a determinate quantitative equation to explain why it is as large as it is, why it is not larger than it is.

"ripened" one period from now—or one for one against finished goods produced today from last period's inputs. The fundamental factor relating unripened product today to ripened product one period from now is the market interest rate r (or what Ricardo and Marx would call the rate of profit, a pure percentage per period).

If the interest rate were $r = .05$ per period, then 100 finished units of Y (or of K) would today trade in the competitive market for 105 unfinished units of Y (or of K) just produced by current labor and capital goods. Free competition among producers, investors, owners of labor, and owners of capital goods will insure the following unit cost-of-production equations:

$$\begin{aligned} p_1 &= (wa_1 + p_1b_1)(1 + r) \\ p_2 &= (wa_2 + p_1b_2)(1 + r). \end{aligned} \tag{5}$$

The first of these equations is directly solvable for p_1/w; and substituting the result into the second, we get the following explicit solution to (5) in terms of $(a_1, b_1; a_2, b_2; r)$:

$$\begin{aligned} \frac{p_1}{w} &= \frac{a_1(1 + r)}{1 - b_1(1 + r)} \\ \frac{p_2}{w} &= \frac{a_2(1 + r)[1 - b_1(1 + r)] + a_1(1 + r)b_2(1 + r)}{1 - b_1(1 + r)}. \end{aligned} \tag{6}$$

The reciprocal of the last of these is the real wage expressed in terms of consumption goods. If interest were zero, this expression would equal the full productivity of labor in producing consumption goods, as given in the first equation of (4). But of course (4) refers only to steady states of output and input, paying no attention to the time lag between inputs and outputs. Only under special, and unrealistic, market assumptions can the competitive supply and demand relations be expected to ignore these timing relations: if supply and demand among investors and consumers yields a positive r, then workers will receive their "discounted" productivity. This means many things to many writers: exploitation to some, to others merely that workers (and machine-owners) receive their full *undiscounted* productivities in terms of the intermediate product that they *now* produce. Because of the workers' supply and demand for ripe and unripe products, and the corresponding supply and demand of those who own consumption or capital goods, the market rate of interest r is what it is. And being what it is, costs and prices and incomes are what they are.

Note too that the price ratio between any two goods, such as $p_2/w \div p_1/w$ in (6), or between either of these and any third good, will *not* be proportional to their embodied labor contents as given in the first equation of (4) and the corresponding equation derivable for

K in terms of L_1 alone.[3] Exchange values would precisely be given by such labor contents if interest or profit were zero. (Remember we have also conveniently banished all land rents from existence.) This mathematical fact will not be of comfort to one looking for a labor theory of value as a base point for a theory of labor exploitation; the proportionality of market price to labor content applies validly only when surplus value is zero and not worth talking about!

When interest is positive, a change in its magnitude will change all relative prices, a hard fact that Ricardo never could square with his desire to find an absolute measure of value based upon labor. And even had Marx lived to write a fourth or fortieth volume of *Capital,* he could not have altered this arithmetic obstacle to the relevance of his labor theory of value.

The Tableau Économique. For each stationary state based on L and r, we can combine the prices of (6) and the quantities of (4) to get the Quesnay-Marx-Leontief money-flow matrix. Of course, we must reverse the Marxian emphasis, beginning with market exchange values rather than labor values because that is what the market that determines people's incomes and goods' prices begins (and ends!) with. We get:

$$
\begin{aligned}
p_1K &= (wL_1 + p_1K_1)(1 + r) \\
p_2Y &= (wL_2 + p_1K_2)(1 + r).
\end{aligned}
\tag{7}
$$

Write p_1K_1 as the Marxian "constant capital" C_1, wL_1 as "variable capital" V_1, and the difference between Industry-I receipts and the sum of these as "surplus value" S_1. Define C_2, V_2, S_2 for the second industry likewise. Then by definition (7) can be rewritten:

$$
\begin{aligned}
p_1K &= C_1 + V_1 + S_1 \\
p_2Y &= C_2 + V_2 + S_2.
\end{aligned}
\tag{8}
$$

Such a relation would be valid even if positive accumulation were taking place, with $\Delta K = K^{t+1} - K^t > O$, and (7)'s $K = K_1 + K_2 + \Delta K$. If simple reproduction is assumed, with $K = K_1 + K_2$, then it is easy to derive the Marxian condition for simple reproduction.[4]

$$
C_2 = V_1 + S_1 \tag{9}
$$

However, the supposition made in *Capital,* Vol. I, of equal rates of surplus value in different industries, $S_1/V_1 = S_2/V_2$, is seen to be gen-

[3] If we write $\Delta K = K^{t+1} - K^t$ as the net production of physical capital, over and above what is used up as intermediate product in production ("depreciation"), then the steady-state production-possibility equation of final goods producible for each L may be shown to be given by:

$$
a_1(1 - b_1)^{-1}\Delta K + [a_2 + a_1(1 + b_1)^{-1}b_2]Y = L.
$$

[4] P. M. Sweezy, *The Theory of Capitalist Development* (New York, 1942), p. 77. This seems by all odds the best book on Marxian economics.

erally untrue. By (6)-(8), we find:

$$
\begin{aligned}
\frac{S_1}{V_1} &= \frac{r(wa_1 + p_1 b_1)}{wa_1} = r + r\frac{p_1}{w}\frac{b_1}{a_1} = \frac{r}{1 - b_1(1+r)} \\
\frac{S_2}{V_2} &= \frac{r(wa_2 + p_1 b_2)}{wa_2} = r + r\frac{p_1}{w}\frac{b_2}{a_2} = \frac{S_1}{V_1} + r\frac{p_1}{w}\left(\frac{b_2}{a_2} - \frac{b_1}{a_1}\right).
\end{aligned} \tag{10}
$$

It would be a fortuitous selection of $(a_1, b_1; a_2, b_2)$—namely that for which $b_1/a_1 = b_2/a_2$—that would make these equal when both are not zero. However, the situation is a little better than Marx's critics have realized: for if the "organic composition of capital" happened to be the same for different industries at one interest rate, then it would have to be the same for all values of r.

Table I shows the simple reproduction model in the Leontief tableau form of input-output money flows. Each industry is listed in rows and in columns. Thus, the column of Industry I gives the dollar production

TABLE I.—SIMPLE REPRODUCTION, LEONTIEF-STYLE

Industries		I	II	Final Products	Gross Product Totals
I		p_1K_1	p_1K_2	0	Σ
II		0	0	p_2Y^*	Σ^*
Value Added	Wages	wL_1	wL_2		Σ } Σ^*
	Interest	$r(wL_1+p_1K_1)$	$r(wL_2+p_1K_2)$		Σ }
Gross Costs		Σ	Σ^*	Σ^*	$\Sigma\Sigma$

costs it pays out. The row indicates where Industry I sells its products. Above and to the left of the broken lines are the intermediate-goods flows; then on the right comes the value of final output, and below come the value-added cost items (excluding, of course, all depreciation). The starred quantities represent national product, as final commodity flow or equivalent factor costs. The sums of rows or columns are indicated by Σ, and the $\Sigma\Sigma$ checks the identity of all the table items to the gross sum of column sums and to the gross sum of row sums. As a condition of stationariness, $\Delta K = O$ in row I's third column: hence (9)'s identity between p_1K_2 and the value-added items of column I.

To be stressed is the fact that our table is limited by more than the tautological accounting identities: having committed ourselves to equations (1)-(6), we must make each entry in the table directly proportional to total labor L, with a proportionality coefficient that is an

easily determined function of $(a_1, b_1; a_2, b_2; r)$ and nothing else. I leave the working out of such coefficients to the reader, since they are important only for Marx's special two-industry circular model. Later we shall see how the coefficients vary for each percentage rate of growth of the system.

A Digression on the "Transformation" Problem. Marx seems never to have quite mastered the purely technological implications of his simplest models. It is idle to speculate whether his Volume II analysis of circular flows might not have been more fruitful if he had not misled himself by Volume I's attempted labor theory. After all, we don't expect in 1860 to find 1960 models. But later scholars surely would have made progress faster in this field if they had subjected the labor theory to careful analysis rather than spent so much time in what must seem to a critic as sterile apologetics.

One honest attempt to analyze the relations between exchange values and labor values beyond the unsatisfactory state left by the posthumous Volume III is associated with the names of Bortkiewicz, Sweezy, and Winternitz.[5] Yet the present *exact* analysis of this model suggests that this so-called "transformation problem" is rather pointless. Equations (6)-(7) determine all market magnitudes in terms of $(a_1, b_1; a_2, b_2; r; L)$. Using the definitions implicit in (8), we can then evaluate all the Marxian expressions as functions of these same variables. Logically this transformation goes from exchange values to Marxian-defined values—not vice versa! This is because exchange values are solidly based on equations (5)-(6), as Ricardo, Smith, and all modern economists would agree. There is no similar solid ground to be found in the Marxian labor theory of value; a model based on equal rates of surplus value is like a made-up nursery tale, of no particular relevance to the ascertainable facts of the simple competitive model (nor to the facts, for that matter, of the Chamberlin monopolistic competition models or the models of developing and oscillating capitalism).

Many Marxians have thought it a virtue of the labor theory of value that it "explains its deviations" from the market-price theory. If so it shares this virtue with every theory, however nonsensical: for

[5] See Sweezy, *op. cit.*, Ch. 7 for discussion and references. Also, L. von Bortkiewicz, "On the Correction of Marx's Fundamental Theoretical Construction in the Third Volume of *Capital*," transl. by Sweezy from the July 1907 *Jahrbücher für Nationalökonomie und Statistik* and given as an appendix in Sweezy's English edition of Böhm-Bawerk's critique of Marx and Hilferding's rejoinder: *Karl Marx and the Close of His System* (New York, 1949). J. Winternitz, "Value and Prices: A Solution of the so-called Transformation Problem," *Econ. Jour.*, June 1948, LVIII, 276-80. R. L. Meek, *Studies in the Labour Theory of Value* (London, 1956), pp. 189-200, discusses this problem and gives reference to later *Econ. Jour.* writings.

truth always equals "error plus a deviation"; and while I should prefer to say that Euclid's geometry explains the deviations between it and my daughter's geometry rather than vice versa, I would not go to the guillotine over such a semantic issue. A quite different defence of the Volume I detour is the historical argument that prices *once* were in accord with Volume I's labor theory, but just as Volume III evolved from Volume I so did the capitalistic system outgrow the simple labor theory: ontogeny repeating phylogeny may be accurate biology, but a respect for the facts of history and anthropology stands in the way of this hypothesis. There is finally Marx's own view that the labor theory of Volume I is needed to "determine" or "explain" the *aggregate* of surplus value, with the bourgeois theories of Volume III having the mundane task of settling the details of how the determined aggregate is to be *allocated* among the different industries. Actually, in the competitive Marxian model defined by equations (1) and the following, there can be no prior determination of the aggregate: the whole is the sum of its (admittedly nonindependent) parts and all the pricing relations are simultaneously determined.[6]

I have not the space to deal with the defensive argument that Volume I's labor theory is a (needed or unneeded?) simplifying first approximation. Modern science and economics abound with simplifying first approximations, but one readily admits their inferiority to second approximations and drops them when challenged. Moreover, to my mind, the only legitimate first approximation would be that of Smith

[6] Maurice Dobb, *On Economic Theory and Socialism* (London, 1955), Chapter 17, deals with the transformation problem. Dobb, as does Sweezy, seems to feel that Bortkiewicz came to criticize Marx but in effect ended up justifying him by showing that labor's wage was determined after a "deduction" and by arguing as follows: "If . . . the rate of profit in no way depends on the condition of production of those goods which do not enter into real wages, then the origin of profit must clearly be sought in the wage-relationships and not in the ability of capital to increase production." (L. von Bortkiewicz, "Value and Price in the Marxian System," English transl. in *International Economic Papers No. 2* [1952], p. 33). I do not see that the Bortkiewicz "deduction" or "withholding" theory of wages differs essentially from the conventional "discounted" productivity theories here analyzed and subscribed to by Taussig, Wicksell, Böhm-Bawerk, and non-Austrians. Adding a nonwage-good sector with its new (a,b) coefficients and adhering to horizontal labor-supply conditions which fix the real wage, we may find it true that all three industries can come into stationary equilibrium and with r determinable from (6) or (11) quite independently of the new (a,b) coefficients. But how does this make anyone prefer Volume I to Volume III or to any modern bourgeois theory?

Without going into the social relations of the past or future, any economist can see these implications of competitive market prices. (He can also see that the (b_1,b_2) coefficients reflecting the productivity of capital *do* affect r; and he can envisage a case where Industry III alone, by virtue of having $a_3 = 0$ and $b_3 < 1$ will determine its own-rate of profit by itself, and he will realize that if this new r differs from that of (11) what must give is not bourgeois economic theory or the capitalistic institutional economy but rather the assumption of stationary relative prices!)

and Ricardo in which the labor theory is first introduced with zero surplus value or profits (as in Ricardian comparative advantage examples) but is then to be dropped as unrealistic. Volume I's first approximation of equal positive rates of surplus value, S_i/V_i, is not a simplifying assumption but rather—to the extent it contradicts equal profits rates $S_i/(V_i + C_i)$—a complicating detour. Marxolaters, to use Shaw's term, should heed the basic economic precept valid in all societies: Cut your losses!

II. *Incompatibility of Falling Profit and Falling Real Wage*

Falling Real Wage or Falling Rate of Profit? We now have the equipment to answer an unresolved problem of the Marxian literature. Is there a law of the declining rate of profit as time goes on? Ricardo and Sir Edward West in 1815 showed that the answer is, Definitely yes, if you assume Malthusian reproduction of labor matches the capital accumulation that is applied to scarce land. The law of diminishing returns applied to land then guarantees that profit, or interest, should fall.

Marx, having in most of his work ruled out such rising rent considerations, explicitly rejects this explanation of falling profits. Moreover, Marx was like Malthus and older economists in not bothering to distinguish between technological changes and changes within a given production function. This does not mean that for him a postulated secular econometric law meant that literally what it prophesied would indeed happen; for, like Malthus and others, he often spoke of "tendencies," and in such a way that we hardly know how to decide when he was wrong—and hence when he was right!

From a tautology relating the profit rate r to society's rate of surplus value $\Sigma S/\Sigma V$ and its organic composition of capital $\Sigma C/\Sigma V$, Marx deduced the tautology that higher values of the latter, the former being held constant, would necessarily mean that r falls. Sweezy, Joan Robinson, and most analysts of Marx have rightly, I think, criticized this arbitrary *ceteris paribus* type of argument. The rate of surplus value is a purely derived concept about which little can be said in advance until we already know what is happening to the (a, b) technological coefficients and the supply-demand relations for labor and interest loans. Instead therefore we must tackle directly the question of what accumulation will tend to do to r, basing ourselves on the actual behavior equations of competitive capitalism.

First though, we should note a contradiction in Marx's thinking that analysts have pointed out. Along with the "law of the falling rate of profit," Marxian economists often speak of the "law of the falling (or constant) real wage of labor." Some Marxians have even thought

that the important fruit of *Capital*'s peculiar definitions has been this law of the "immiseration" of the working classes, with the rich getting richer the poor poorer, and with nothing to be done about it until capitalism becomes so senile and cycle-ridden as to lead inevitably to a revolutionary transformation into socialism or communism. The facts of economic history have, of course, not dealt kindly with this law. And Marx himself did not adhere to it at all times. But he perhaps didn't fully realize the inconsistency of his two inevitable laws. As Joan Robinson points out: "Marx can only demonstrate a falling tendency in profits by abandoning his argument that real wages tend to be constant."[7] Our model is well-designed to show this.

Specifically, with specified (a, b) coefficients if attempts to accumulate did succeed in bringing profit r down to a lower plateau, the real wage would have to be higher—and by a quantitative amount to be predicted from our second formula of (6), namely

$$\frac{w}{p_2} = \frac{1 - b_1(1 + r)}{a_2(1 + r)[1 - b_1(1 + r)] + a_1(1 + r)b_2(1 + r)}. \tag{11}$$

This rational function grows as the interest or profit rate falls, reaching its maximum when r reaches its zero level.

A Theorem about Technological Change under Perfect Competition. This wage-profit relation is derived, not from the orthodox model involving smooth marginal productivities, but from the simplest fixed-coefficients model that Marx seems often to have had in mind.[8] It does rest though on fixed technology as given by the (a, b) coefficients. Since Marx admits technological change into his system, doesn't *my*

[7] Joan Robinson, *An Essay on Marxian Economics* (London, 1942), p. 42. Also, Sweezy, *op. cit.*, Ch. 6.

[8] J. Robinson, *op. cit.*, p. 43 demonstrates the orthodox case, making implicit use of a smooth two-factor homogeneous production function. Her next page's numerical example, suggesting that with a fixed real wage r *might* fall, is inconsistent with such a model, no matter how "very sharply" the marginal productivity of capital is assumed to fall; forgotten is the fact that when increased capital to labor leaves the real wage constant, decreased labor to capital *must* leave the profit rate constant too; actually, for all changes within a smooth or unsmooth homogeneous production function, Δ(real wage) equals $-\lambda\Delta$(profit rate), where λ is an intermediate positive capital/labor ratio.

Recently William Fellner, "Marxian Hypotheses and Observable Trends under Capitalism: A 'Modernized' Interpretation," *Econ. Jour.*, Mar. 1957, LXVII, 16-25, argues that a two-factor, homogeneous production function, zero-monopoly world can have its real-wage marginal productivity and its profit marginal productivity simultaneously fall—provided a sufficiently labor-saving invention has intervened. Fellner's conclusion is inconsistent with my theorem: competition would keep the invention he envisages from ever becoming exclusively dominant. The rest of Fellner's excellent paper is quite unaffected by his pp. 20-21 discussion of this point, which in any case no longer represents his opinion on the subject. Since writing this paper, I note H. D. Dickinson, "The Falling Rate of Profit in Marxian Economics," *Rev. Econ. Stud.*, Feb. 1957, XXIV, 120-31, deals with a similar topic, attempting to use the Marxian C, V, S, categories. The sharp contrast with the present treatment is worthy of note.

argument that falling r with given (a, b) coefficients implies rising real wage w/p_2 become irrelevant? In the competitive model, I believe not completely.

For technological change is itself subject to *some* laws. A technical improvement must be an improvement or it will not be introduced in a perfect-competition market economy: Marx cannot repeal the valid part of Adam Smith's law of the Invisible Hand, for its validity depends only on the existence of numerous avaricious competitors. To illustrate, imagine an old set of coefficients $(a_1, b_1; a_2, b_2; r)$ and a new possible set $(a_1', b_1'; a_2', b_2'; r')$. Then if $r' < r$ and if the new technology will actually win its way in a competitive market over the old, I assert the theorem that *the new steady-state real wage $(w/p_2)'$ must be greater than the old real wage.*[9]

This is straightforwardly provable by the mathematics of linear programming. It will become intuitively clear if one considers the special Ricardian case where $b_1 = 0$ and no circular complications can arise from the fact that it takes machines (K_1) to make machines (K). Remember that in a perfectly competitive market it really doesn't matter who hires whom: so have labor hire "capital," paying the new market interest rate $r' < r$; then labor could always use the old technology and paying less than r get better than the old real wage. If labor does not do this, it must be because it can now do even better than better.[10]

If my result or my argument seems paradoxical, remember that perfect competition—like Christianity—will be found to be very paradoxical if ever it is universally tried. And remember too that Marx has made the unrealistic assumption that everything except labor is reproducible in the long run. If he had abandoned his labor-theory-of-value concepts and from the beginning built on the patent fact that natural resources too are productive (in the unemotive sense that if the U.S.A. or U.S.S.R. didn't have them, its product would be less), then the possibility of having profit and wages both fall would have to

[9] Rewriting (11) as $w/p_2 = \Phi(r;a,b)$, and now letting (a,b) be variable as a result of technological change, the competitive Invisible Hand can be proved to select (a,b) so that $w/p_2 = \Phi(r) =$ maximum of $\Phi(r;a,b)$ with respect to (a,b). Similarly, $r = \Phi^{-1}(w/p_2)$ $=$ maximum of $\Phi^{-1}(w/p_2;a,b)$ with respect to (a,b). Always $\Phi'(r) < 0$. I believe this to be a new theorem. Of course, it is a prosaic mathematical fact not a Dr. Pangloss teleology.

[10] The argument holds even if capitalists do all the hiring, provided only that workers go where they get highest w and competing capitalists do what gives highest profits. If $b_1 > 0$, the argument needs some amplification because workers have to hire some of the old-type K_1 to carry through the old-type activities and for quite a while the rents of the K's might be adverse to labor; also we could not be sure of being able to settle down to a steady state in two periods when $b_1 > 0$. The stated theorem remains valid though. (Note that with $b_1 > 0$, there *must* have been other ways of producing or getting K, else the system could never have gotten started and could never recreate any K if it were all bombed out—or if, like passenger pigeons or dodo birds, K once became extinct.)

be admitted. He would also have been in a better position to explain why some people are very rich indeed and why some countries are more prosperous than others.

Causality and History. Faced with two contradictory dogmas, what are we to do? Decide that the capitalistic system is doomed to contradiction, and that when the irresistible force meets the immovable object there will ensue an inconceivable disturbance—with communism peeking up through the revolution's ruins? This is the "pathetic fallacy"—in which the observer imputes to Nature his mental states—with a vengeance.

Instead, of course, we jettison one (at least!) of the dogmas. Which one? I nominate the law of the declining (or constant) real wage for the junk pile, and note with interest that modern Marxians increasingly turn to that part of the sacred writings more consistent with last century's tremendous rise in workers' real wage rates.[11]

It would be unsafe to predict an actual secular decline in interest or profit rates in that most economists—notably Schumpeter and Irving Fisher—have emphasized how technological change may raise sagging interest rates, just as plucking a violin string restores its dissipating energies. Moreover, interest rates have historically oscillated in such a way as to lead many economists to the view that there is a fundamental law of constancy of the interest rate. (Taussig, *e.g.*, tried to frame a theory of a horizontal savings schedule to explain this alleged constancy.)

None the less it is of some import to know what would be the effect of attempts to accumulate capital at a rate greater than labor supply increases, ***on the assumption of unchanged technology.*** For such an inquiry can throw light on the tendencies upon which technological changes of a labor-saving, capital-saving, or neutral character have to be superimposed. Within the framework of my simple two-sector fixed-coefficients model, the resulting analysis will be seen to be at least a little like the despised wage-fund doctrines of Smith, McCulloch, and the Mills.

III. *Steady Growth*

The Expanded-Reproduction Model. Apparently Marx did not have the time to perfect his "expanded reproduction" model in which investment and growth take place. Modern techniques make such analysis a simple task. I retain the fixed-proportions assumption and take up the natural case where, instead of being geared to a stationary level, the economic system is geared to steady growth. This necessarily

[11] See for example, discussion of this topic in *Econ. Rev.* (Tokyo), Jan. 1957, VIII, particularly 21-25.

means steady geometric or exponential growth at uniform percentage rates: no other time-path is possible if many variables and their rates of change are to remain in constant proportions. Such a geometric progression has the further property that relative contemporaneous prices and relative intertemporal prices can be constant along it.

Our production conditions (1) and (2) remain applicable. So do our cost-of-production conditions (5)-(6). But now our simple-reproduction equations (3)-(4) must be replaced by their equivalent relations corresponding to each percentage rate of growth m per period. Now:

$$\begin{aligned} K^{t+1} &= (1+m)K^t = \cdots = (1+m)^t K^0 \\ L^{t+1} &= (1+m)L^t = \cdots = (1+m)^t L^0 \\ a_1(1+m)K^t &+ a_2 Y^{t+1} = L^t \\ b_1(1+m)K^t &+ b_2 Y^{t+1} = K^t, \end{aligned} \tag{12}$$

where I have substituted for K^{t+1} its indicated value in terms of K^t and have omitted all inequalities by virtue of the assumption that the system is geared to its rate of growth with no excess capacities of men or machines. Just as we solved the static (3) for (4), we can solve the last two equations of (12) explicitly to get

$$\begin{aligned} Y^{t+1} &= \frac{1 - b_1(1+m)}{a_2[1 - b_1(1+m)] + a_1 b_2(1+m)} \\ K^t &= \frac{b_2}{a_2[1 - b_1(1+m)] + a_1 b_2(1+m)}. \end{aligned} \tag{13}$$

The first of these coefficients has a slight similarity to the expression for the real wage in (11) or (6). In (11) and (6) the positive interest factor r acted to blow up, so to speak, every input requirement a_i or b_i into $a_i(1+r)$ and $b_i(1+r)$. Here the positive growth rate m acts to blow up b_1 and a_1 into $b_1(1+m)$ and $a_1(1+m)$, but b_2 and a_2 are quite unaffected.[13]

Table II presents the moving equilibrium. Except for $p_1 \Delta K$, which is equal to $mp_1(K_1 + K_2)$, it looks like the earlier Table I. National product is now given by fewer starred sums Σ^*, and this must equal the sum of all the value-added items. No longer does the condition for simple reproduction, $p_1K_2 = wL_1 + r(wL_1 + p_1K_1)$ as in (9), hold. Also the precise dollar magnitudes are now definitely weighted toward more importance to Industry I, since we now spend more of our available final incomes on capital growth: the exact quantitative magni-

[13] In the closed von Neumann model of dynamic equilibrium, characterized by constant-returns-to-scale and everything plowed back into the system, m and r turn out to be identical. This is not such a system and the possible relations are $m \gtreqless r$.

TABLE II.—STEADY-GROWTH EXPANDED-REPRODUCTION, LEONTIEF-STYLE

Industries		I	II	Final Products	Gross Product Totals
I		p_1K_1	p_1K_2	$p_1\Delta K$	Σ
II		0	0	p_2Y	Σ
Value Added	Wages	wL_1	wL_2		Σ } Σ^*
	Interest	$r(wL_1+p_1K_1)$	$r(wL_2+p_1K_2)$		Σ
Gross Costs		Σ	Σ	Σ^*	$\Sigma\Sigma$

tudes are given by functions of the $(a_1, b_1;\ a_2, b_2;\ r;\ m)$ coefficients and are easily computed from equations (6) and (13).

In the next period our tableau would look like that of this period, but with all magnitudes blown up by the common factor $(1 + m)$; and so forth with each succeeding period. Hence, such a steady-growth progression *could* go on forever if only the same behavior rules continue to prevail. (The only restriction on the possible rate of growth is that $1 - b_1(1 + m) > 0$ or $0 \leqq m < (1 - b_1)/b_1$ so that all indicated ratios shall exist and keep all our variables positive. A similar restriction $1 - b_1(1 + r) > 0$ had to hold for r. Otherwise production of capital goods K could never have paid.)

I have said nothing about the saving habits of wage or interest earners that would give rise to the analyzed growth rate m. Certainly if each group saved a constant proportion of its income at all times, say σ_w for workers and σ_r for interest receivers, we could solve for the only "warranted rate of growth" m that is compatible with these properties. (Of course, to assume that L^t is always available at the resulting geometric rate is tantamount to postulating a "natural rate of growth" equal to whatever warranted rate results.)[13]

The solution for m in terms of σ_w and σ_r is more complicated than one might at first think. Obviously, the distribution of income depends upon the interest rate r, postulated to go along with the given $(a_1, b_1;\ a_2, b_2)$ technical coefficients. Call the fractions of income going to wages and interest k_w and $k_r = 1 - k_w$. Then the community's average propensity to save must be

$$\sigma = k_w\sigma_w + k_r\sigma_r = k_w(\sigma_w - \sigma_r) + \sigma_r;$$

and we see that this will be the higher the higher is the income of the relatively more thrifty interest receivers.

What we may not realize is that the distribution of income coeffi-

[13] These terminologies will be recognized as those of the modern Harrod-Domar growth models.

cients, besides being functions of the interest rate r, are also functions of the unknown m growth rate as well; indeed the ratio of total capital asset value to income, the so-called "accelerator" coefficient β, which is needed along with σ to define the warranted rate of growth, is itself a function of m (as well as of r). So the equation defining the warranted rate of growth:

$$m = \frac{\sigma}{\beta} \qquad \text{or } \beta m - \sigma = 0$$

must, even for given (a, b) coefficients, be written in the implicit-equation form:

$$(14) \qquad m = \frac{\sigma(r; m)}{\beta(r; m)}, \qquad \text{or } \beta(r, m)m - \sigma(r, m) = 0.$$

Why do the accelerator and the distribution-of-income coefficients depend on m as well as on r? First, because the relative share of wages will differ generally in Industries I and II, and each different growth rate gives a different relative importance to the capital-goods and consumption industries. Our equations permit us to compute the exact effects for each $(a_1, b_1; a_2, b_2; r; m)$ coefficients. Second, and related to the above, each different r will change the dollar (or consumption-good or labor-hour) total of asset value to which the yield r is applied. The equation:

$$\begin{aligned} \text{Total interest return} &= r \text{ (total asset value)} \\ (15) \qquad &= r(wL_1 + wL_2 + p_1K_1 + p_1K_2) \\ &= r[A(a_1, b_1; a_2, b_2; r; m)wL], \end{aligned}$$

where A is a function determinable from our earlier equations and where the bracketed expression represents total asset value.

Our whole problem then has a determinate solution quite free of any of the dilemmas of "capital metaphysics." All is grounded in hard technological fact and hard competitive-market fact: there are circular relations between interest and asset value, but they are virtuous circles not vicious ones.[14]

IV. *Changing Factor Proportions and Prices*

The Law of the Rising Rate of Profit. So long as labor and the sys-

[14] The case where profit receivers have $\sigma_r = 1$ and workers have $\sigma_w = 0$, however econometrically unrealistic, is a special case of the above analysis. Were $\sigma_w > \sigma_r$, the logic of the system would be little changed. Of course, with $\sigma_w = \sigma_r$, the distribution of income would become irrelevant and the analysis slightly simplified. Also, in the singular case earlier mentioned, where $a_1/b_1 = a_2/b_2$ and labor-values are proportional to prices, k_w and k_r are independent of m and the analysis becomes even more simple; but to assume away differences in the organic composition of capital is to ignore one relevant factor in the distribution of income.

tem are geared to grow at the same rate, there is no need for profit or interest to change. But if labor grows at a faster percentage rate than does "capital," our equilibrium conditions become inconsistent. Something has to give. What?

One definite possibility is for labor to become redundant and—if it has no reservation price or real cost of staying fit to work—its wage will have to fall. Fall how far? Adhering to the extreme assumption of fixed-coefficient production functions as given in (1) and what follows, we recognize that the real wage becomes literally zero. Kill off one of the now superfluous man-hours and you have outputs unchanged: so the competitive market will impute a zero wage to all man-hours. Mathematically, the inequality will now hold in the first relation of (2); and since all subsequent equations were based on the equality in this relationship, all must now be replaced by new relations. *E.g.*, cost-of-production now requires:

$$
\begin{aligned}
p_1^{t+1} &= b_1 p_1^t(1 + r^t) + a_1 0 \\
p_2^{t+1} &= b_2 p_1^t(1 + r^t) + a_2 0;
\end{aligned}
\tag{16}
$$

and if prices are to be constant through time with $p_i^{t+1} = p_i^t$, we must have

$$
\begin{aligned}
1 + r &= \frac{1}{b_1} \\
\frac{p_2}{p_1} &= b_2(1 + r) = \frac{b_2}{b_1}\,.
\end{aligned}
\tag{17}
$$

These show that the interest rate, which is now interpretable as the own-rate and net-reproductive-rate of machines, must, so long as any of them are being produced, be determinable by technology alone quite independently of all time preferences; and that the terms of trade between consumer goods and machines now depends only on technology, and more specifically only on machine requirements as given by the b's with the a requirements of free labor now being irrelevant.

We can now reckon the national product from the first equation of (12). The following must all hold:

$$
\begin{aligned}
b_1 K^{t+1} + b_2 Y^{t+1} &= K^t \\
b_1 \Delta K + b_2 Y^{t+1} &= (1 - b_1) K^t \\
\frac{b_1}{1 - b_1} \Delta K + \frac{b_2}{1 - b_1} Y^{t+1} &= 1 \cdot K^t \\
\frac{p_1}{p_2} \Delta K + 1 \cdot Y^{t+1} &= r\left(\frac{p_1}{p_2} K^t\right).
\end{aligned}
\tag{18}
$$

The next-to-the-last of these shows the total value of final products

expressed in machine *numeraire* units. The last equation shows on the left side the total value of final products expressed in consumer-good *numeraire* units. The right side, which was derived by using the relations (17), shows that the national product is equal from the cost side to interest on value of machines alone. This is natural enough since wages are zero and must have a zero share of total income.[15]

In this case where capital goods have ceased growing as fast as labor, the rate of profit has risen to become all of the product. So bizarre a result came from the bizarre assumption of fixed coefficients. If there were many alternative techniques, a faster growth of labor than capital would imply rising interest or profit rates and falling real wages, but not a zero wage with profits getting all.[16]

Even in the extreme case of fixed-proportions technology, a zero wage is one possibility: indeed a quite likely one. But it is not the only possibility. As long as the organic compositions of the two industries differ, by shifting demand toward that industry with relatively high labor requirements—as measured by higher a_i/b_i—we could put off the evil day of labor redundancy and zero wage. There is no Invisible Hand, though, which inevitably leads the system to this demand shift: the reduction in the relative price of the labor-intensive good need not coax out much more physical demand for it. In any case, if labor really grows at a faster geometric rate than capital, labor must inevitably become more plentiful relative to capital than either industry could employ and must ultimately become free.

How Profits Fall. The case where capital grows more rapidly than labor is perhaps more true to Western life. In order to see what happens when people try to accumulate faster than the labor supply, consider the special instance where labor is completely stationary and yet savers would like to accumulate. This special case, where the natural rate of growth of the system is given by $m = 0$, does not differ in its qualitative features from any case where m is positive but less than the warranted percentage rate at which capitalists would like to have the system grow.

[15] If capitalists saved all, with $\sigma_r = 1$, and if they received all the income, with $k_r = 1$, then the system's actual rate of growth would be $m = r = (1 - b_1)^{-1}$, which would prevail so long as available labor grew even more rapidly and stayed freely available. It would involve a certain amount of implicit theorizing to argue that this actually would happen in a model in which laborer's-consumption was tied to subsistence and had already been included by convention in the b (rather than a) coefficients; but such a mode of arguing would not be logically wrong, however unrealistic these econometric assumptions might be regarded.

[16] The simplest neoclassical model is one where $Y + (dK/dt) = Q(K,L)$, Q being a homogeneous function of the first degree with partial derivatives ("marginal productivities") Q_L and Q_K. The diminishing-returns condition $\partial^2Q/\partial L^2 = Q_{LL} < 0$ implies that a rising trend in L/K entails a rising trend in $r = Q_K$ and a falling trend in $w = Q_L$.

The Marxian model with fixed coefficients presents some quite pathological features. For if the attempt to accumulate were to cause physical machines K to grow relative to fixed labor L, the machines would become redundant in supply and their rents would fall immediately to zero.[17] The most obvious case in which this would have to happen instantaneously is that in which the organic compositions of capital are equal: $b_1/a_1 = b_2/a_2 = b/a$. The instant K/L exceeded b/a, K would become free, with $(p_1/w)^t = 0 = (p_1/p_2)^t$. We should then have:

$$p_2^{t+1} = w^t a_2(1 + r^t). \tag{19}$$

No production of future K would take place unless it covered its production costs; so only so much would take place as could match the b/a machine-labor ratio. Industry I would therefore contract so as no longer to produce K^{t+1} in excess of La/b. Industry II would temporarily produce more consumption goods: whether these would end up consumed by workers or capitalists would depend on the interest rate and price configuration prevailing at the end of the next period.

A similar but slightly more complicated analysis would handle the case where $b_1/a_1 \neq b_2/a_2$. In every case should the attempt to save cause a disproportionate temporary growth in K, K would become free. This does not imply euthanasia of the capitalist class, not even temporarily. For as (19) shows, interest would still be received on "advances" to workers. Machines are only one type of capital asset. Goods in process are another.[18]

Had the attempt to save forced K rents to zero, it could only be the result of a miscalculation: competitive future prices could not have been correctly quoted in the market place. To be sure, competitive capitalists have no crystal ball picturing the exact future and mistakes have often been made. But once K had become free, it could never stay

[17] There is the possibility, mentioned in the last section, that shifts in product-demand-mix toward the industry using more of the excessively-supplied factor might absorb its extra supply—at least for a while. Thus the cheapening of the machine-intensive good might meet a sufficiently elastic demand for that good to keep both factors nonredundant. But note that this shift could not carry us back to the stationary-state simple-reproduction configuration of Table I with the same price ratios and interest rate prevailing and the same zero net investment prevailing, because our hypothesis is that people are no longer content to refrain from saving in that situation. And growth of K at ever so small an exponential rate faster than labor's growth rate would inevitably make it a free good in finite time.

In this pathological model labor might collusively wipe out all K rents by producing one redundant unit of K. But only temporarily. Production of K will subsequently contract. In this model, collusion of all owners of K could limit its supply and wipe out wages. However, if any one unit of K escaped from the cartel, it and collusive labor could eventually reproduce any needed K *outside* the cartel.

[18] Such intermediate goods are probably a better description of capital than the old view of capital as the historic, now gone, food that was advanced to workers. The latter double-counts if we add it to the former; by itself, the latter undercounts in that interest is also earned on outlays for factors other than labor.

free and continue to be produced. Curtailment of its production by Industry I would undoubtedly take place. One could even try to construct a cobweb-like business cycle theory of intermittent over- and underproduction of capital goods; certainly, though, a two-sector fixed-coefficients model has such special features as to make the result rather unrealistic.

What then is the equilibrium time-path that is consistent with stationary L and attempts to accumulate? The fixed-coefficient Marxian model makes all "real" accumulation quite impossible: there can be *no* technical "deepening of capital" in it. Does this mean that the profit rate r cannot fall? No. Why should it mean this? If I wish to save, for my old age or to enhance my power, why should I be led to desist from trying to do so by the consideration that the system is incapable of using new investment? Rather will I continue to try to save, to try to buy up existing assets.

Thus, suppose I earn income from K rents, or from interest return on goods in process, or from selling goods for more than I paid in wages and rent in producing them, or for that matter merely from my wages. Then instead of spending all this income on current consumption goods Y, I may *try* to hire labor or machines for next period's production, giving up so to speak my consumption allotment to owners of those factors.

Now what is it which guarantees that there will be owners of such factors willing to hire them out in the amount that investors wish to employ them? Of course, it is the competitive pricing mechanism that causes all markets to be cleared.[18a] Crudely, you can say that the interest rate r^t falls enough to eliminate any excess in the value of what people want to save and invest over the value of factors available to them; contrariwise, if the wish to save and invest is lagging, the present factor prices $p_1{}^t$ and w^t will be depressed relative to future goods' prices $p_1{}^{t+1}$ and $p_2{}^t$ and the competitive rate of interest (or of profit) will be bid up very high. It is crude to speak of the interest rate r^t as alone providing equilibration: actually it is the whole pattern of present and future prices $(p_1{}^t, p_2{}^t, w^t; p_1{}^{t+1}, p_2{}^{t+1}, w^{t+1})$.

In the special case where the urge to accumulate is modest and steady, the profit rate r^t could be steadily falling as a result of this process, but at so slow a rate as to permit relative prices $(p_1/w)^t$ and $(p_2/w)^t$ to remain practically constant over time.[19] Then our cost-of-

[18a] See later sections for some qualifying remarks concerning "effective demand."

[19] I make a point of considering a slow change in r^t because the actual interest change in each period will cause changes in (p_2/p_1) and (p_2/w) and create revaluations and money windfalls. With relative prices changing, we no longer have equality of "own-interest-rates" and (5)-(6) need obvious modifications. By assuming $(r^{t+1}-r^t)$ always very small, we make these revaluation-effects small and ignorable.

production equations (5)-(6) would still be valid but are to be written with a slowly falling r^t in them. The steady attempt to accumulate leads to no physical accumulation of K or anything else; rather it causes an upward valuation of existing input prices relative to output prices, which is the same thing as a reduction in the profit rate r^t. Some savers may now succeed in hiring additional inputs $(K_1{}^t, K_2{}^t, L_1{}^t, L_2{}^t)$ but, if they do, it is because other capitalists become content at the new interest rate and price pattern to hire less. If all capitalists are exactly alike, they merely bid up factor prices and bid down profit rates.

What has all this attempted accumulation done to real wages? With lower r^t in equations (5)-(6), and in particular in the last line of (6), we see that less is being "discounted" from labor's ("gross") productivity. Real wages have been rising. If, at the lower interest rate, net accumulation should now cease, the real wage going to the unchanged labor supply will not fall back to its previous level but will stay at the higher plateau forever.

Each capitalist in trying to save and increase his own profits ends up killing off the total of profits in favor of the workers. This extreme phenomenon results from the extreme assumption of fixed-coefficients with implied zero marginal-productivity to all further machines or changes in the roundaboutness of production. Yet something of what happens in this case will also hold in a more realistic case of multiple production techniques. As attempted saving lowers interest rates it lowers the discounting of real wages; but in the more neoclassical case, employers will not lose all that workers gain, the difference coming from the extra product producible from "deepening of capital" (*i.e.*, producible from the new complex of physical capital goods brought into existence by the pricing changes induced by the attempt to save).[20]

All this makes clear that the technical (a, b) coefficients and the competitive cost-of-production equations are insufficient to determine all our variables: we need further equations of supply and demand, as *e.g.* ordinal utility conditions showing how workers and interest receivers allocate their consumption expenditures among different goods. But even the latter consumption demand equations are not enough: the rate of interest r^t would still not be determined.[21] We need saving-investment propensities, and propensities to hold and add to earning assets to complete the system.

[20] See Figures 2b and 2c for elucidation of the many-techniques case.

[21] If labor is assumed always to be on a horizontal long-run supply schedule at a "subsistence real wage w/p_2," then (6) or (11) would alone determine r. But prescribing employment L leaves r and w/p_2 still to be determined.

The next sections show the wage-fundlike character of this competitive process.

V. *Wage-Fund Notions*

Perhaps the expression "wage fund" should be avoided altogether as conjuring up too many ghosts and as being too hopelessly ambiguous. Sometimes the wage fund meant merely sums of money "destined" for wage payments, whatever the word "destined" is supposed to mean. Sometimes it meant inventories of finished consumption goods "destined" for workers, and to some writers supposedly consisting of different consumption items than more elegant capitalists would deign to consume. Sometimes it meant a numerator of "all capital," which in some ill-described fashion got divided by the denominator of population number to give as an arithmetic quotient the real wage per capita. Finally in F. W. Taussig's resurrection, *Wages and Capital* (1896), the wage-fund doctrine merely becomes a reminder that production does take time and that men do not consume unfinished goods, with the implication of a certain short-run inexpansibility in the consumption goods available to the community (to nonworkers as well as workers).[23]

In connection with the present two-sector model, it is superficial to split consumption Y^t into two parts, Y^* "destined" for workers and Y^{**} destined for capitalists, and then to write down the trivial identities:

$$(1-\sigma_w)w^tL^t = p_2^t(Y^t - Y^{**}) = p_2^tY^*$$

$$\left(\frac{w}{p_2}\right)^t = \frac{(Y^t - Y^{**})/(1-\sigma_w)}{L^t} \tag{20}$$

Except possibly for L^t, none of the right-hand variables are given constants. In the shortest run itself, when we are realistic enough to introduce inventories into our model, we see that not even total consumption Y^t is unilaterally given. And suppose it were: still, in anything but the shortest run, decisions could be made to cause it to change.

What does need emphasizing is the fact that in every run the supply-demand decisions of workers, of old capitalists, of new investors are

[23] In its most rigid form, the wage-fund doctrine implied that unionized or ununionized workers face a short-run aggregate demand schedule of exactly unitary elasticity. This neglects the short-run possibility of using up finished-goods inventories faster than the usual rate, and tells nothing about the longer-run demand elasticity, which could be on either side of unity. In its weakest form, it suggests that the demand for labor is not perfectly inelastic and that the demand curve's rightward and upward shift induced by accumulation *may* be slowed down by concerted measures to raise present wage levels at the expense of thrifty capitalists.

needed to give us determinate equations for our set of present and future prices (p_1^t, p_2^t, w^t, p_1^{t+1}, p_2^{t+1}, r^t, . . . etc.). Taussig was quite right in pointing out that the Malthus red herring of a (very-long-run) horizontal supply schedule of labor at the "[conventional] subsistence level" kept Ricardo, J. S. Mill, and most of the Classicals—but not the aging Malthus!—from perceiving how undetermined and implicit was their theory of current wage determination and pricing. Marx's reserve army is in some ways an even redder herring that deflects attention from the missing supply-demand relations.

Here I shall simply sketch in a superficial way the process determining wages, surplus values or interest, and goods pricing. We start out with a given K^t owned by its owners, with a given L^t perhaps to be taken as a demographic parameter. Today's Y^t we suppose to be given by past decisions, and we overlook changes in short-term inventories of consumer goods. The system has a history of prices and wages. This period's market must determine decisions on how much of (K_1^t, L_1^t, K_2^t, L_2^t) are to be hired to produce next period's (K^{t+1}, Y^{t+1}). The competitive market does this through determining now (p_1^t, p_2^t, w^t; r^t). Simultaneously a set of notions about future prices (p_1^{t+1}, p_2^{t+1}) are formed and in terms of these relative prices, employers make decisions. If goods were homogeneous, undoubtedly a futures market would spring up to register and resolve differences of expectations about future prices; but if this did not happen, our theory would still be valid after certain easy alterations.

The "profits" of employers are, retroactively reckoned, determined by comparing $p_1^tK^t$ and $p_2^tY^t$ with their past wage and machine costs. The profits resulting from today's decisions will similarly be known in the next period. In tranquil times, the *ex ante* hopes for profit and *ex post* realized profits will not differ too much; but differences that do develop will be noted in the market and will influence later decisions in the obvious direction.

"Net or excess demands" for (Y^t, K^t; K_1^t, L_1^t, K_2^t, L_2^t) will be determinate interdependent functions of (w^t, p_1^t, p_2^t; p_1^{t+1}, p_2^{t+1}; r^t; . . . etc.). Our number of independent equations is equal to the number of unknowns, with only price ratios being determinable until we specify enough about the supply and demand conditions for a circulating medium (*e.g.*, given gold coins; or minable gold; or paper currency issued by the State according to specified behavior rules; or stipulated banking practices).

My fixed-coefficient Marxian model, in the absence of technical innovations altering the (a, b) coefficients, would probably be characterized by attempted accumulation whenever r^t is high. As we have seen, this would cause r^t to be falling; with no physical deepening of capital

possible, capitalists would lose in income what workers gain, which might slow up the accumulation process and which later could even cause it to cease. (If we assume that interest and profit rates are quite high, we can perhaps avoid some of the effective-demand problems that arise from the temptation to hoard money when interest rates are very low.)

Where alternative (a, b) techniques exist, lower r^t will induce adaptations in technique. These adaptations can be expected usually to slow down the drop in total interest income. Does this mean that the real wage will grow less rapidly? If lower r^t induces irreversible (a, b) changes of a so-called "labor-saving" type, the rise in real wage could indeed be slowed down or even be wiped out; and if this were to happen, the fall in r^t would have been converted into a subsequent rise in r^t, interest rising more than the drop in total wages. However, any change to a new (a, b), which now pays only because r^t is lower, will produce a higher real wage for each r^t than would the old (a, b); but if the demand for "capital" is sufficiently elastic or sufficiently little inelastic, induced technical changes might slow up the rate of fall of r^t so much as to cause the real wage to rise more slowly than it would under a single technique. I suspect, but cannot prove conclusively, that a Marxian who takes seriously the fixed-coefficient single-technique case is selecting the very model in which improvement of labor's share of the total income would be easiest within the framework of an unchanged-technology capitalism.

Life's Libretto: One Technique or Many? The case of a single fixed-coefficient technique is a very peculiar one indeed. Increase labor by epsilon and its share of the product may go from 100 per cent to zero! The later neoclassical economists would consider this as the extreme case of a marginal product curve for labor that is infinitely steep over a wide range: confront so steep a curve with a coinciding infinitely-steep supply curve of labor, and you have indeed created an indeterminate equilibrium wage with all the scope for collective bargaining and class power struggles that you could want.

Perhaps Karl Marx really had such a technology in mind. Perhaps not. It may be reasonable to believe that Marx, like Ricardo and other early writers, and unlike modern neoclassicists, never explicitly thought about what properties of the production function (a concept not yet explicitly defined or named) he wished to posit. It would be reading into him things that he would not recognize to claim a smooth production function with infinite substitution possibilities. On the other hand, he speaks again and again of alternative techniques. While many of these clearly depict technological change in the production

function rather than movement within one function, the fact that the old methods are still known along with the new shows that Marx and Ricardo definitely envisage the existence of more than one technique. (Both Ricardo and Marx write of technical changes induced by price changes and adapted to changed price ratios; neither rules out the possibility that if the old price ratios were restored, the old technique might again become more economical.)

Whether or not Marx would resent being interpreted as a believer in a fixed-coefficient single-technique world, I should resent on behalf of the real world any such description. Go into any machine plant, pick up any engineering catalogue, study the books of physics and the histories of industrial processes, and you will see the variety of different ways of doing anything. If fixed Leontief coefficients (a_i, b_i) had characterized the world, it could never have got started. If the world has changed, the old processes are still remembered. Changing prices will induce accommodating changes in techniques. Perhaps the bookish economist will reply, "Foul! You are bringing in nonstatical, nonreversible changes." To this the realistic observer of the world will shrug his shoulders and answer, "So much the worse for a statical one-technique theory, or for that matter for any statical theory of production: but if we are to approximate reality by quasistatical tools, the more realistic production function to use is one with numerous alternative techniques, quite different in their input combinations and intensities."

We must not be put off by the bogey-man query: "Do you think that God created the earth with smooth Wicksteed homogeneous production functions involving a few aggregative factors, Socially Necessary Labor, Efficiency-unit Land, and Catch-all Dollar Capital?" To deny such a belief is not to confirm a belief in fixed-coefficients. A more realistic interpretation of actuality will recognize the existence of a large, perhaps finite, number of alternative techniques. The modern theory of linear programming permits the economist to handle these analytically; but even if we ivory-tower observers could not easily handle the analysis of many techniques, it would be another case of the Pathetic Fallacy to think that the actors in the real world will desist from making jig-saw puzzle substitutions because we economists can't easily analyze them.

John Jay Chapman once said that a visitor to this world would find its people behaving more like the people in a Verdi opera than in an Emerson essay. So if a visitor from Mars insisted upon a grandiose simplification of the economic system—instead of using the less dramatic methods of Walras, Chamberlin, and Keynes—I think he'd be

safer in positing an aggregative production function of the Clark-Wicksteed type than one of the Leontief-Walras type.[23]

VI. *The Reserve Army of the Unemployed*

I shall conclude my dissection by investigating whether the existence of a reserve army of the unemployed can do the powerful things Marxians have claimed for it. Can it lower real wages to subsistence? Can it lower real wages below the marginal product of the last man when all the unemployed are put to work? Can it lower real wages below the marginal product of the first man of the reserve army when put to work?

Such questions must not be answered in simple terms. First, we shall have to specify exactly what monetary assumptions we are making; what institutional assumptions with respect to unionism, labor mobility, interpersonal differentials in skills and zealousness; what microeconomic assumptions about the mix of demand; etc. I shall not attempt to deal with these intricacies but will for the sake of the argument walk along the road with the simple Marxian aggregative models, making drastically simplifying assumptions.

Thus I assume two industries: Industry I producing capital goods and Industry II producing consumption goods. I go along with the simplifying assumption that machines and chocolates are produced with the same organic compositions of labor and capital goods; and that all capital is used up in one period so that the Marxian "constant capital" concept is easiest to handle. I assume the unemployed workers are as zealous and able as the employed. I assume away monopsony and monopoly to see where cruel competition will lead.

How do the unemployed depress real wages? If the unemployed are away at a distance and unable to offer their services, they will have no effect on money or real wages. It is by offering to work for less, and only by so doing, that they can depress money wages. The employer cannot get his workers to accept a cut merely by talking about the threat of replacing them by the unemployed; he will get the cut only if experience has taught the workers that this is not an empty threat. If men out of work do offer to work for less, the money wage cannot remain stationary in a perfectly competitive labor market. The money wage will fall and continue to fall until no more excluded men bid it down. I stress these banalities because so much Marxian literature seems to regard the mere *existence* of the unemployed (or of the

[23] I speak here of the first-edition Walras. In his second-edition *Éléments,* Walras had the system select among a number of different techniques to minimize costs; and in his third edition, he considered the infinite-substitution homogeneous production function case. Leontief, it must be said, never meant that his fixed coefficients be applied to gross aggregates.

"disguised unemployed") as itself a reason for competitive wages to fall. The natural question to ask then is this: "What is the effect on wages after the unemployed have been employed? How much have they depressed money and real wages?" Today, thanks to Keynes and others, we know that this is a complicated question. Falling money wages need not mean falling real wages if prices are made to fall as much. Indeed, waiving favorable Pigou-Keynes effects resulting from increased real balances induced by the price-wage decline, we can construct models of hyperdeflation in which money wages push down prices indefinitely with unemployment never disappearing and real wages not necessarily changing. Had Marx used a reserve army of the unemployed as a reason for falling *money* wages, one could better understand the logic of his system.

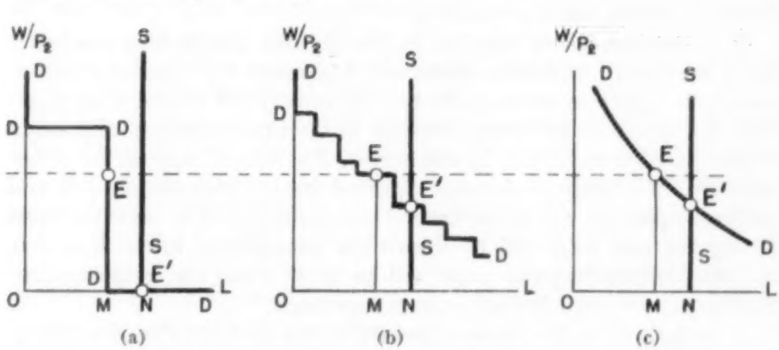

FIG. 2. In every case *DD* is "aggregate real demand for labor," *SS* is total labor force available for work, *MN* is the "reserve army of the unemployed," and *E′* the real wage when reserve army has disappeared.

To isolate the effects the unemployed have on real as against money wages, let's make the unrealistic supposition that they can bargain institutionally in terms of real wages—in terms of consumer goods or Ricardian corn. Then under the equal-organic-composition assumptions of our two-sector model, the "aggregative demand curve for labor in terms of wage goods" would be given by the discounted-marginal-physical-product curve of labor for either industry, the consumer-goods curve being exactly the same as the discounted-marginal-product curve in the capital goods industry once we have scaled the products so that they are 1-to-1 producible with the same labor and machine inputs.[24]

[24] The reader may make his own effective-demand assumptions to make this compatible with his theory of income determination. Thus, a good Keynesian will probably prefer to assume that aggressive government fiscal policy operates to offset any incipient deflationary or inflationary gaps threatened at full employment by nonintersecting saving and investment schedules. Some may give an active offsetting role to the central bank. Still others may be unaware or may deny that a problem could arise.

Figures 2a, 2b, and 2c show the resulting aggregative real demand for labor in the single-technique case, the many-technique case, and the infinitely-many-techniques neoclassical case. In every case, the unemployed reserve army of NM is made about 10 per cent of the labor force. Depending upon the technical elasticity of the marginal-product curve, the reserve army could reduce real wages by different amounts—but in Figures 2b and 2c wages can be reduced only by the reserve army's shrinking in size. The wage level E' in the three diagrams represents the lowest that real wages could fall when the reserve army had done its worst and become indistinguishable from the army of the employed. Would any competent observer of U.S.A., U.K., or U.S.S.R. technology believe that 10 per cent more men could not in any way be employed without making the last man incapable of adding much to product?[25]

The question is not whether in the shortest run, before employers knew they were to employ more and had made the necessary adjustments, marginal products might not fall greatly. Of course, they might fall. To get me to hire more workers in the next minute or day might require a great reduction in real wages. But let this happen for a few days or for months and years. Spurred by the ridiculously low real wages, employers will make needed adjustments and if we insist upon letting the real wage fall to absorb the unemployed in the long run, the equilibrium long-run wage will be at E' along the long-run marginal product curve *after* adjustments are made.[26]

I conclude from this way of looking at the problem that the strongest competition among the unemployed, the employed, and the employers will—when it has done its worst and depressed real wages enough to wipe out the unemployed—fail in modern western societies to depress real wages to anything like the subsistence level, instead bringing it down at worst to the (quite high) discounted marginal

[25] Writing in the 1860's, Marx could with some excuse think that real wages might fall to a subsistence level. A Marxian acquainted with the statistics of real wages in modern Western economies has no such excuse.

[26] A simple set of mathematical equations describing the content of Fig. 2c would be:

$$Y + (dK/dt) = Q(L,K),\ dK/dt = \sigma_w(LQ_L) + \sigma_r(KQ_K),$$

with government expenditure or aggressive central bank policy assuring that (dK/dt) is always such as to take up the resources not required for consumption. With fixed K, we can compute the reduction in real wage resulting from ΔL of the unemployed becoming employed, as follows: new real wage $= w + \Delta w = \partial Q(L + \Delta L,K)/\partial L$, and with $\Delta w/w$ equal to $[Q_{LL}L/Q](\Delta L/L)$, where the bracketed expression is the "reciprocal of the elasticity" of the marginal product curve at some intermediate point. Note that for given K and L, w is here quite independent of σ_w and σ_r. If we drop Marx's equal-organic-composition-of-capital assumption, this will no longer be true and the analysis has to be expanded.

product of labor at the level of employment equal to 100 per cent of the available labor force. Such a wage-floor is not only very high in the most advanced capitalistic society, but the bulk of the statistical evidence of economic history and the qualitative evidence concerning scientific invention and capital formation suggest as well that this wage-floor is advancing dynamically from year to year, decade to decade, at a rate that doubles perhaps about every 30 years.

VII. *Some Conclusions*

I have dealt with Karl Marx the economist, not Marx the philosopher of history and revolution. A minor Post-Ricardian, Marx was an autodidact cut off in his lifetime from competent criticism and stimulus. In applying to the models of Ricardo and Marx modern tools of analysis, I hope we are violating no rules of etiquette and in no way trying to suggest we are cleverer than they were!

What then is the verdict of the present dissection? Our post-mortem suggests the following conclusions:

1. Marx did do original work in analyzing patterns of circular interdependency among industries. Such work gains few converts and is not very helpful in promoting revolution or counterreactions. But like all pioneering effort it deserves the commendation of later craftsmen, and it deserves further development. There is half-truth in Schumpeter's adaptation of Clemenceau: "Marxian economics is too hard to be left to the Marxians." Only half, because the present paper is seen to involve little worse than school algebra and to be well within the frontier of modern economic theory.

2. Marx's labor theory of value of *Capital*, Volume I, does appear to have been a detour and an unnecessary one for the understanding of the behavior of competitive capitalism. The admittedly important analysis of imperfect or monopolistic competition is helped little or none at all by the "surplus-value" approach. That Böhm-Bawerk, Wicksteed, and Pareto were essentially right in their critiques of Marx seems borne out by the present investigation of the Marxian model.

3. I have concentrated, however, not on the problem raised for the pricing of many different goods by the unnecessary Marx-Ricardo labor-value assumptions. Instead I have concentrated on the more-neglected implications for relative goods-factor pricing of the Marxian surplus-value notations and notions. The present logical analysis suggests that the Marxian notions do not achieve the desired goal of "explaining the laws of motion or of development of the capitalistic system."

If it were true that the rich get richer the poor poorer, the distribu-

tion of income more skewed against labor and in favor of profit,[27] the two-sector models here analyzed would provide no particular hint of this. Indeed, writing in 1860 and being aware of the Industrial Revolution going on, an economist who took those models seriously should have (i) expected technological change to lower the (a, b) coefficients, (ii) should have expected the odds to favor a strong increase in real wages, the only exception arising from an extreme "bias" of inventions toward the extreme labor-saving type (a phenomenon *not* particularly sugested by the pre-1860 data known to financial journalists or men-of-affairs, nor particularly suggested by any a priori reasonings about the model or about the nature of technology).

I blame no one for failing to foresee the trends in the century after his death. But one can be forgiven for insisting upon the established fact that real wages in Germany, England, and America did rise more or less proportionately with total product from 1857 to 1957. To have been judged lucky by economic historians, Marx should have phrased a theory to explain the approximate constancy of wage's relative share of the national product, not the secular decline of this relative share. His actual models, we have seen, were perhaps better than he: for gifted with hindsight, we see that they contain in them no tendency for real wages to fall or to lag particularly behind the growth of output.

Nor do such models throw much light on the secular trends in the degree of imperfection of competition or on the propensity of the system to oscillate or stagnate. But all that is another story.

[27] We know little about the secular trends of the inequality of the personal distribution of income, as measured by Pareto's coefficient or by Gini's parameter describing the Lorenz curve. Pareto himself thought he had established a natural law of constancy of income inequality, independent of all public policies and institutional frameworks. The empirical basis for this generalization was never very impressive. The bulk of the available evidence, in fact, suggests that as capitalism has developed the Pareto coefficient has moved towards greater equality: whereas underdeveloped countries did, and do, show Pareto coefficients around 1.3, we find in developed countries Pareto coefficients of 2.0 for income before taxes and 2.2 after taxes. See J. Tinbergen, "On the Theory of Income Distribution," *Weltwirtschaftliches Archiv*, 1956, LXXVII, 156-57. Modern economics has no grandiose explanations to offer, but it can contribute to an analysis of the relevant forces at work.

THE GROWTH OF INSTALMENT CREDIT AND THE FUTURE OF PROSPERITY

By ALAIN ENTHOVEN*

During 1955, the amount of consumer instalment debt outstanding increased by slightly more than 23 per cent. This indication that the rather spectacular postwar growth in instalment credit had not come to an end was a cause for concern in both official and unofficial circles. The Council of Economic Advisers urged the enactment of legislation re-establishing standby controls and the launching of a major study of the problem.[1] At the request of the Council, the Board of Governors of the Federal Reserve System undertook a study and, in March 1957, produced five volumes on various aspects of consumer instalment credit.[2]

Concern over the growth of instalment credit has centered around two general problem areas which may be described respectively as cyclical and long-run. Essentially, the cyclical problem is this: the availability and the stock of consumer credit may intensify cyclical fluctuations which have their origins elsewhere. In a manner analogous to the cyclical behavior of inventories, the availability of credit in an upswing permits people to purchase durable goods in anticipation of an increase in their incomes. The "investment" in durables, in turn, has multiplier and accelerator effects. On the other hand, cyclical declines in income are intensified by the stock of debt outstanding. The burden of repayments may force people to decrease the fraction of their incomes spent on current consumption as their incomes decline. The failure of *ex ante* savings to fall with income places an

* The author is a member of the economic analysis department of The RAND Corporation. This analysis is very much an application of some of the ideas contained in the general approach to financial development of E. S. Shaw, of Stanford University, and J. G. Gurley, of the Brookings Institution. See, for example, their "Financial Aspects of Economic Development," *Am. Econ. Rev.*, Sept. 1955, XLV, 515-38, and other papers. The author wishes to acknowledge gratefully the comments and suggestions of Shaw, of M. W. Hoag and H. S. Rowen of The RAND Corporation, and of J. N. Morgan of the Survey Research Center, University of Michigan.

[1] *Economic Report of the President, January 1956*, pp. 93-94, 138.

[2] *Consumer Instalment Credit,* Board of Governors of the Federal Reserve System (Washington, 1957). For complete citation and a review of this study by W. L. Smith, see p. 966.

extra burden on monetary and fiscal policies.[3] The cyclical problem has an important monetary aspect. With the growth of financial intermediation in general and instalment credit in particular, the relationship between the money supply and the price level becomes ever more tenuous. To prevent rising prices of consumer goods during a period of prosperity, the central bank may have to resort to ever stronger measures as more borrowers and lenders find ways of circumventing the monetary system. Thus the growth of instalment credit may present a serious problem for monetary control.

The long-run problem may be illustrated by extrapolating the postwar rates of growth of debt and income. Instalment debt outstanding has increased by a factor of more than 12 since 1945, while national income has less than doubled. The annual relative increase in debt has exceeded 25 per cent in 6 postwar years. If these rates of growth were to continue, it is argued, instalment payments would soon equal income. But, clearly, long before this point would be reached, the burden of the debt would become intolerable and its growth would stop. When this happens, it is alleged, sales of consumer durables will decline and the prosperity, which has been financed in part by instalment credit, will end. This position was expressed by S. E. Harris:

> . . . from 1952 to the end of 1955 residential mortgages rose more than 4 times as much as national product, consumer credit 3½ times as much as national product, automobile credit 6½ times as much. In 1955, the process accelerated greatly: automobile credit rose by $3.9 billion, or more than one-third. It could not be expected that this rate of increase would continue. And is not a prosperity built on this kind of progression at least in part a sham prosperity? We are borrowing prosperity to some extent from the future.[4]

The same point of view was taken by H. M. Groves:

> . . . the economic gain of 1955 included "borrowed prosperity" supported by an acceleration of consumers' credit (and therefore money supply) that could not be maintained. A rise in consumers' credit so out of proportion to the rise in national product must eventually overburden the consumers' budgets with required payments.[5]

In an article entitled "The Coming Turn in Consumer Credit," Gilbert Burck and Sanford Parker of *Fortune* predicted with alarm that:

[3] See S. H. Slichter, "The Economics of Eisenhower: A Symposium," *Rev. Econ. Stat.*, Nov. 1956, XXXVIII, 357-85. Also, D. D. Humphrey, "Instalment Credit and Business Cycles," *Consumer Instalment Credit*, *op. cit.*, Pt. II, Vol. I, pp. 3-56.

[4] S. E. Harris, "The Economics of Eisenhower: A Symposium," *op. cit.*, p. 358.

[5] H. M. Groves, "The Economics of Eisenhower: A Symposium," *op. cit.*, p. 378. See also J. S. Atlee, "Consumer Credit Expansion: Macroeconomic Analysis and Data Requirements," *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 254-94.

> Consumer short-term debt, perhaps the most controversial force in the booming U. S. Economy, is approaching a historical turning point. Having risen at an abnormally fast rate for ten years, it must soon adjust itself to the nation's capacity for going in hock, which is not limitless. Whether the rate of growth in consumer debt will slow down is no longer the question; . . . it *must* slow down.[6]

This paper is concerned with the long-run problem. It is my intention to show that alarm over the postwar experience is based upon a misleading view of the burden of instalment debt and an incorrect extrapolation of its growth. Consideration of the distribution of the debt and its economic significance should lead us to a new concept of its effects on consumer expenditure. My method of analysis will be to assume that income grows steadily, to extrapolate the growth of instalment debt since the war by the use of a model based upon the distribution of the debt, and to show that the continued growth of instalment debt, when correctly extrapolated, is not inconsistent with the assumed pattern of income growth.

I. *The Life-Cycle Model*

The basic model implicit in the conclusions of Harris and Groves, and in the popular view of instalment debt, may be described as an "expected-value" model based upon the position and behavior of the "average" consumer. If the stock of instalment debt outstanding is equal to 10 per cent of current national income, it is assumed implicitly that each income recipient is in debt by an amount approximately equal to one-tenth of his individual income. Since 1945, money income has grown at an average rate of about 6 per cent each year while instalment debt has grown at an average annual rate slightly exceeding 26 per cent. Extrapolating these rates, instalment debt which is now equal to about 10 per cent of personal income will equal 20 per cent of income in less than 5 years. Whether the critical value be a fifth or a half, at some point in the foreseeable future, consumers will be sufficiently immersed in debt that they will consider further increases in the ratio of debt to income to be intolerable. At this point, since they are all in debt by approximately the same amount in relation to their incomes, consumers will all curtail their durable-goods purchases. Presumably the ensuing recession in the consumer-durables industries will then be propagated, via multiplier and accelerator effects, to the rest of the economy.

By way of contrast, consider a simplified economy in which, for some reason, no consumer borrowing has taken place. Suppose that

[6] Gilbert Burck and Sanford Parker, "The Coming Turn in Consumer Credit," *Fortune*, Mar. 1956, LIII, 99-102 and 240-47.

a change in institutional structure or the removal of a restriction now occurs and that a class of "borrowers" appears. The borrowers are couples in their first year of marriage. Suppose that all of these borrowers have the same constant average propensity to incur debt, that is the same ratio of borrowing to income, and that no one else does any borrowing. Assume finally that all loans must be amortized over a fixed number of years. An economy in which no borrowing has taken place may seem to have little relevance to the problem at hand, but this is not the case. At the end of 1945, consumer instalment debt outstanding in the United States was less than $2.5 billion, less than half the amount outstanding in 1941 and actually less than at the end of 1930. This abnormally low stock of debt was a consequence of wartime shortages and restrictions. Although it was not literally true in 1945, the assumption of a zero initial stock of debt in our model will be a useful abstraction. Let us trace the growth of debt and of durable-goods sales in this economy.

During the first year, an amount of borrowing will take place equal to the number of borrowers multiplied by their average income and by their average propensity to incur debt. At the end of the year there will be a stock of instalment debt outstanding equal, let us say, to $D(1)$. New borrowing in the second year is likely to exceed borrowing in the first year for two reasons. First, the number of borrowers will have increased. In fact, it is likely, in a growing population, that the number of borrowers will grow more rapidly than the population as a whole. However, for the sake of simplicity, let us assume that the age distribution of the population and the marriage rate are constant so that the number of borrowers will grow in the same proportion as the population.[7] Second, average income per capita will have increased. If the distribution of income with respect to age is stationary, then the total income of borrowers as a group will have increased in the same proportion as national income. Therefore, if, in our model economy, national income in the second year exceeds that of the first year by a factor of $(1 + r)$, new borrowing will increase also by the same factor.

The increase in the stock of debt outstanding during the second year will be equal to the difference between new borrowing and repayments. The process may be illustrated by a simple example. Suppose that repayments for all debt contracted in one year are divided equally

[7] For the time period which we are considering, this is not a particularly strong assumption. For example, in the United States between 1946 and 1956, the ratio of married couples to total population increased from .2234 to .2278. Population grew over this decade at an annual rate of 1.74 per cent while the number of married couples grew at an annual rate of 1.94 per cent. The difference between the two growth rates was too small to affect appreciably the growth of debt.

into two parts, one made a year later and one made two years later. Then debt outstanding at the end of the second year will be equal to the debt outstanding at the end of the first year, which happens to be equal to the amount of borrowing during that year, $D(1)$, plus new borrowing, $(1 + r)\ D(1)$, less repayments, $.5D(1)$, *i.e.*,

$$D(2) = (1.5 + r) D(1). \tag{1}$$

Debt outstanding at the end of the third year will be $D(2)$ plus new borrowing, $(1 + r)^2 D(1)$ less repayments $.5D(1) + .5(1 + r)D(1)$, *i.e.*,

$$D(3) = (1.5 + r)(1 + r) D(1). \tag{2}$$

The longer-run behavior of the model under more general assumptions will be discussed in Part II. Here it will suffice to point out that the amount of new borrowing which takes place each year grows in the same proportion as national income. Thus continuous growth in debt-financed sales of durable goods in the same proportion as national income is consistent with the model. On the other hand, the stock of debt grows, in the early stages, at a much faster, though decreasing, rate in terms of itself. In our simple example, $D(2)$ exceeds $D(1)$ by a factor of $1.5 + r$ while $D(3)$ exceeds $D(2)$ by a factor of only $1 + r$.

The characteristic feature of this model is that the use of instalment debt is highly correlated with position in the life cycle. Borrowing tends to be a once in a lifetime matter and all borrowing is done by households which begin the year debt free. In this economy, the existence of outstanding debt in any individual household at the end of its year of eligibility for borrowing might be said to act as an absolute deterrent to further borrowing. Nevertheless, for the economy as a whole, the outstanding stock of debt does not act as a deterrent to new borrowing and to the purchase of durable goods, because the class of eligible borrowers is being replenished constantly at an increasing rate. This is the essential difference between the expected value model and the life-cycle model. In the former, the new borrowing must be done by people who are already in debt and hence the stock of debt may act as a deterrent to further borrowing.

Of course the life-cycle model represents a considerable simplification of the actual economy. We know that in fact many users of debt stay in debt for extended periods and regard the payment of one debt as an opportunity to incur another. What we have done here is to isolate the life-cycle effect in its pure form. In the actual economy, it will tend to offset the inhibiting effect of accumulated debt.

The effects of accumulated debt on the behavior of individual households have been analyzed by L. R. Klein and J. B. Lansing and by

James Tobin.[8] Both studies were multivariate analyses of reinterview data from the Surveys of Consumer Finances of the Survey Research Center for 1952 and 1953.[9] The interpretation of the results is not entirely straightforward. Klein and Lansing found a significant positive partial correlation between the ratio of purchases of durable goods to income during the year and the ratio of debt outstanding to income at the beginning of the year, in a multiple regression which included such variables as income, demographic status, expectations and attitudes. The positive correlation, which seems to imply that debt did not act as an inhibitor of durable-goods purchases, can be explained as the result of the persistency of personality traits. People who have been in the habit of buying durable goods will tend to be in debt and will also tend to purchase more durable goods, and vice versa. Thus for any individual family, debt may still be a deterrent, but the evidence is inconclusive. Klein and Lansing also found a positive correlation between the ratio of debt to income and the ratio of consumption to income. Using a somewhat different set of variables, Tobin also found a positive, though not significant, correlation between the ratio of durable-goods expenditure to income and the ratio of debt at the beginning of the year to income. He argues that the persistency of personality traits would lead one to expect a strong positive correlation between the two ratios and that the failure of such a correlation to materialize is evidence that, for individual households, debt does inhibit expenditures on durable goods. Unfortunately, the available data do not permit a test of Tobin's conjecture. However, at best, the evidence in favor of the deterrent effect is not very strong.

Tobin did find a significant negative correlation between the ratio of debt at the beginning of the year to income and the ratio of change of debt during the year to income. Households beginning the year deeply in debt tended to reduce their indebtedness while households which began the year with little or no indebtedness tended to incur new debt. This is interpreted by Tobin as evidence that for individual households, "high debt levels deter further use of debt in financing purchases." It has been pointed out already that the existence of a

[8] L. R. Klein and J. B. Lansing, "Decisions to Purchase Consumer Durable Goods," *Jour. Marketing*, Oct. 1955, XX, 109-32; James Tobin, "Consumer Debt and Spending: Some Evidence from Analysis of a Survey," *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 521-45.

[9] The sample which was used in these studies is valuable because it contains two observations on each household made with a year's separation. Thus debt at the beginning of the year and expenditures on durable goods and changes in debt were measured more accurately than they would have been if the variables were measured from a single point in time. On the other hand, the sample has serious shortcomings. It excludes households which were formed or dissolved during the year, families which moved and farm families. Also the sample was quite small, numbering between 700 and 800.

deterrent effect for individual households need not imply that an analogous effect operates for the economy as a whole. The life-cycle model reconciles the two. However, it is interesting to observe that the negative correlation which Tobin found corresponds very closely to what one would expect to find in cross-section data sampled from an economy conforming strictly to the life-cycle model: those households which are in debt at the end of a year reduce their indebtedness in the following year while all new debt is incurred by households which begin the year debt-free. It would be plausible to argue, then, that at least part of the correlation which Tobin interpreted as evidence of the deterrent effect is in fact the consequence of the operation of the life-cycle effect.

Even if some of the simplifying assumptions on which the model is based are not fulfilled, the life-cycle effect will still be operative. For example, as I mentioned earlier, the number of borrowers may grow at a relative rate exceeding that of the total population. In this case, new borrowing each year would tend to grow relatively more rapidly than total income. Also, the income elasticity of demand for durable goods may exceed unity. In this case, the average propensity of borrowers to incur debt would increase over time. Alternatively, there might be a trend towards substitution of durable goods for personal services independently of income growth. Each of these eventualities would require a slightly different growth model from the simple one to be presented in this paper. Nevertheless, none of them would interfere with the operation of the life-cycle effect.

The relevance of the life-cycle model to the American economy can be established with the help of data from two Surveys of Consumer Finances conducted for the Federal Reserve System by the Survey Research Center.[10] Data from the two Surveys are presented in Table I. All spending units in the economy are divided into seven categories: single persons between 18 and 44 years of age, single persons 45 and over; married couples of whom the husband is between 18 and 44

[10] "1952 Survey of Consumer Finances," Pt. III, *Fed. Res. Bull.*, Sept. 1952; "1956 Survey of Consumer Finances, Consumer Indebtedness," *Fed. Res. Bull.*, July 1956. The 1952 and 1956 data are respectively based on the results of approximately 2800 interviews. The data are quite unreliable as indicators of the total magnitude of instalment debt outstanding. A comparison published in the July 1956 *Bulletin* between aggregate debt estimates based on Survey data and similar estimates by the Federal Reserve based on lender reports indicates that the latter are nearly twice the former. It is fair to presume that the lender data are more accurate. However, these is no reason to believe that the frequency distributions of instalment debt obtained from Survey data are biased or inaccurate. Therefore, I shall use the Survey data as evidence of the distribution of the debt and lender data as a measure of aggregate magnitudes. The questionnaires in the two years were based upon different concepts of income and debt and hence data for the two years are not comparable. However, our objective here is not to compare years but to study the relationship between the use of debt and position in the life cycle.

TABLE I.—THE RELATIONSHIP OF CONSUMER DEBT AND INSTALMENT PAYMENTS TO INCOME, BY FAMILY STATUS[a]

(Percentage Distribution of Spending Units)

	Instalment Payments as a Percentage of Disposable Income, Early 1956[b] (Per cent)			Consumer Debt as a Percentage of Money Income before Taxes, Early 1952[b] (Per cent)		
	Zero	1 to 9	Over 10	Zero	1 to 9	Over 10
Single:						
Age 18–44	60	8	31	60	25	15
Age 45 and over	84	4	11	73	17	9
Married:						
Age 18–44, no children[c]	44	17	37	41	29	27
Age 18–44, children	35	22	40	25	39	34
Age 45 and over, children	47	22	29	39	37	23
Age 45 and over, no children	73	9	17	65	20	13
Other	48	19	30	44	39	17

[a] Single spending units include unmarried, widowed, separated and divorced persons without children. Married spending units include only those in which both husband and wife are present. Age refers to age of head of spending unit.

[b] The percentages do not always add up to 100 because the status of some units was not ascertained.

[c] "No children" is defined as no children under 18 years of age.

Sources: "1956 Survey of Consumer Finances, Consumer Indebtedness," *Fed. Res. Bull.*, July 1956, Suppl. Table 8; "1952 Survey of Consumer Finances, Pt. III," *Fed. Res. Bull.*, Sept. 1952, Table 25.

and who have no children under 18; married couples between 18 and 44 with children under 18; couples, 45 and over with children; couples, 45 and over with no children under 18; and all others.[11] The data show that the frequency and the amount of debt are highly correlated with family status. They are quite consistent with the assumptions about the distribution of consumer debt underlying our model. Debt varies systematically over the life cycle. Young single people use consumer debt much less than do young married people, and among married people, those with children use debt more than those without children. By the time the husband has reached 45 and the children have reached 18, most couples are no longer making payments on instalment debt. The relative frequency of indebtedness declines steadily with increasing age. Only a tenth of the spending units headed by persons 65 and over reported instalment debt in early 1956.[12] Thus

[11] A spending unit, as defined in the surveys, consists of all related persons living together who pool their incomes. "Other" spending units include various combinations of adults and children which do not fall in the other groups, and spending units for which family-status data were not ascertained. An example of the former would be a widow with children.

[12] "1956 Survey of Consumer Finances," *op. cit.* For other empirical studies supporting this hypothesis, see J. A. Fisher, "Income, Spending, and Saving Patterns of Consumer

all borrowers "have their exits and their entrances, and one man in his time plays many parts." In a steadily growing economy, each year some borrowers will pay off their debts and new younger borrowers will replace them.

From a statistical point of view, our argument so far has one shortcoming. We have compared two variables, the ratio of instalment debt to income and stage in the life cycle, without in some way controlling other relevant variables. In a complex situation such as this, bivariate analysis may be misleading and firm statistical conclusions require a multivariate approach.[13] In a study entitled "Factors Associated with the Use of Consumer Credit," J. B. Lansing, E. S. Maynes and M. Kreinin estimated the probability that a spending unit would owe instalment debt as a function of a large number of possibly relevant variables.[14] By successively dropping variables which did not prove to be significant determinants of a spending unit's probability of being in debt, they reached the following list of relevant factors: income, liquid asset holdings, stage in life cycle, region, stability of income, whether the head of the unit is a farmer and whether or not the unit owns a home on which there is a mortgage. The study also included estimates of mean annual instalment payments for those people who did owe debt, by stage in the life cycle. From these results, we may derive the statistics which are presented in Table II.[15]

The table shows the conditional probabilities that three representative spending units will be in debt during different stages in the life cycle, given the other relevant factors. The table provides clear evidence that multivariate analysis supports our general hypothesis. Both the frequency and the amount of instalment debt are highly correlated with the life cycle.

Thus the fact that at any given time some sections of the population are heavily in debt does not imply that the rate of sales of durable goods must soon decline. Each year new families are being formed and children are being born so that new potential borrowers regularly step up to fill the places of those borrowers who may have become debt-saturated. Thus, the debt rotates through the population.[16] People in

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Units in Different Age Groups," *Studies in Income and Wealth*, Vol. XV, National Bureau of Economic Research (New York, 1952), pp. 75-102; Tobin, *op. cit.*

[13] See Tobin, *loc. cit.*

[14] *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 487-545. The data upon which this article is based are taken from the Survey of Consumer Finances of early 1956.

[15] The estimates of mean annual payments should of course be interpreted with the reservations which have been expressed above about the reliability of the Survey data from the point of view of magnitude of the debt. However, these estimates are interesting as relative weights.

[16] See E. S. Shaw, "The Economics of Eisenhower: A Symposium," *op. cit.*, p. 377.

their twenties and thirties typically borrow while those in their forties pay off their debts and accumulate financial assets which are directly or indirectly the debts of the debtors. Sales of durable goods are sustained by those who are relatively debt-free, and, as they purchase durables and go into debt, their places in the ranks of the debt-free are taken by others.[17]

TABLE II.—CONDITIONAL PROBABILITIES OF DEBTOR STATUS AND AVERAGE ANNUAL INSTALMENT PAYMENTS BY STAGE IN LIFE CYCLE

	Family A[a]	Family B[b]	Family C[c]	Average Annual Payment
1. Older (over 45), single people	.18	.36	.47	$365
2. Older (over 45), married, no children living at home	.23	.41	.52	560
3. Young, single	.28	.46	.57	600
4. Older (over 45), married, children living at home	.33	.51	.62	490
5. Young, married, no children; young, married, children, youngest at least 6 years old	.38	.56	.67	669
6. Young, married, children, youngest child under 6	.43	.61	.72	625

[a] Family A has an income between $7,500 and $10,000, a bank balance between $200 and $400, it does not live in the West, it does not live on a farm, it reported no change in its income during 1955 and it owns a home on which there is a mortgage.

[b] Family B has an income between $4,000 and $5,000, less than $200 in the bank, it lives in a Western city, it reported a change in its income in 1955 and it owns a home with a mortgage.

[c] Family C is identical to Family B in all respects but income. Its income is between $7,500 and $10,000.

II. *A Model of Debt-Income Growth*

Returning now to the dynamic aspects of the life-cycle model, we may develop the implications of our hypotheses about the growth of debt in a more general form. In equations (1) and (2) of Part I, we traced the growth in the stock of debt outstanding up to the end of the third year in an economy in which new borrowing grew in the same proportion as income and in which repayments were linearly

[17] The life-cycle model also may be useful in the analysis of various cyclical and monetary questions. For example, during a recession the decline in income is not prorated over the whole population. The main burden of falling income is borne by those who become unemployed. It would be interesting to investigate the incidence of cyclical unemployment in relation to the distribution of instalment debt. If those who are most likely to face cyclical unemployment are also relatively deeply in debt, then the intensifying effects of consumer debt on a recession would be relatively great. If, on the other hand, families who are relatively deeply in debt tend to be headed by men who are established in their jobs and have secure incomes, then the outstanding debt would have little if any depressing effect upon aggregate demand.

related to new borrowing in previous years. We shall now see that, under similar assumptions, the growth rate of debt in terms of itself will exceed that of income in an economy with a low initial debt level, and that the two rates will approach each other asymptotically. In the limit, the ratio of debt to income will be constant and stable. These aspects of the theory can be expressed algebraically in a simple model which will provide us with a basis for the extrapolation of the postwar experience and a means for its quantitative assessment.

First, we assume that in the long run income can be thought of meaningfully as growing at a constant relative rate r. Letting t denote the number of years that have elapsed since the base year and letting Y denote income, we may write

$$Y(t) = Y(0)(1 + r)^t. \tag{3}$$

Second, we assume that new borrowing in any year is proportional to income in that year, and that repayments in any year are equal to a linear combination of new borrowing in previous years, for the economy as a whole. Since the absolute increase in the stock of debt each year is equal to the difference between new borrowing and repayments, and since repayments must be equal to a linear combination of the incomes of previous years, it follows that the absolute increase in the stock of debt outstanding each year must be equal to a linear combination of the incomes of the same year and previous years.[18] For the sake of illustration, let the repayments be complete by the end of the third year. Then we may write

$$D(t) - D(t-1) = a_1Y(t) + a_2Y(t-1) + a_3Y(t-2). \tag{4}$$

Combining (4) with (3), we have:

$$D(t) - D(t-1) = (1+r)^tY(0)\left[a_1 + \frac{a_2}{(1+r)} + \frac{a_3}{(1+r)^2}\right] \tag{5}$$

the expression in brackets being a constant. This illustrates the general conclusion that under our assumptions, in their least restrictive form, the absolute increase in the stock of debt outstanding each year is proportional to a variable which grows at the same rate as income. Thus, with no loss of generality we may write:

$$D(t) - D(t-1) = aY(t). \tag{6}$$

In a more refined analysis, perhaps for the purpose of prediction, one might want to introduce explicitly the growth of population and

[18] Let $B(t)$ represent new borrowing and let $R(t)$ represent repayments in the year t. We have assumed (i) $B(t)=bY(t)$ where b is a constant, and (ii) $R(t)=L[B(t-1), \cdots, B(t-n)]$ where L represents some linear combination. Then (iii) $D(t)-D(t-1)=B(t)-R(t)$. Substituting (i) into (ii) for each year and then (i) and (ii) into the right side of (iii), we obtain $D(t)-D(t-1) = bY(t)-L[bY(t), \cdots, bY(t-n)]$, "a linear combination of the incomes of the same year and previous years."

per capita incomes, together with their distributions, into equation (6). Also, one might choose to introduce some measures of the terms of instalment lending. However, for the purpose at hand, which is to interpret the postwar experience, the simpler assumption will be adequate.

We now relax the assumption made in Part I that debt outstanding is initially equal to zero. Instead, we shall enter the debt-income growth process at an arbitrary base year which has the property that debt is positive but small in relation to its equilibrium value. This permits us to avoid the complications introduced in the first few years of debt accumulation by the fact that the full repayments schedule has not yet had time to come into effect. Adding the stock of debt outstanding in the base year to the increments since then, we may deduce from (3) and (6):

$$D(t) = \sum_{n=1}^{t} aY(n) + D(0) \tag{7}$$

whence

$$D(t) = \frac{a(1+r)}{r} Y(0)[(1+r)^t - 1] + D(0). \tag{8}$$

From (3) and (8) we may draw our basic conclusions:

$$\frac{D(t)}{Y(t)} = \frac{a(1+r)}{r} - \left[\frac{a(1+r)}{r} - \frac{D(0)}{Y(0)}\right](1+r)^{-t}, \text{ and} \tag{9}$$

$$\lim_{t\to\infty} \frac{D(t)}{Y(t)} = \frac{a(1+r)}{r} \cdot \tag{10}$$

Thus, if the stock of debt is small to begin with, the ratio of debt to income will approach asymptotically a stable limit from below. The limit is given by equation (10). Equation (8) can be used also to give us

$$\frac{D(t) - D(t-1)}{D(t-1)} = r\left[\frac{aY(0)(1+r)^t}{aY(0)(1+r)^t - aY(0)(1+r) + rD(0)}\right] \tag{11}$$

whence

$$\lim_{t\to\infty} \frac{D(t) - D(t-1)}{D(t-1)} = r. \tag{12}$$

Therefore, the relative rate of increase in the stock of debt will approach r asymptotically from above. However, in the early years, it will be large, especially if $D(0)$ is small. For example, if $D(0)$ is equal to zero, then

$$\frac{D(2) - D(1)}{D(1)} = (1 + r) \tag{13}$$

$$\frac{D(3) - D(2)}{D(2)} = \frac{(1 + r)^2}{(2 + r)} \, . \tag{14}$$

The value of (13) is slightly in excess of 100 per cent, that of (14), just greater than 50 per cent for likely values of r.

This model can be fitted to the end points of the period 1945-56. For illustrative purposes, I have chosen personal income and instalment credit outstanding. The basis for selection of 1945 as the base year is the belief that a definite structural change took place with the end of the war. Although the wartime regulation of consumer credit did not terminate until November 1947, there were revisions and relaxations of the rules in 1945 and 1946. The structural change can be identified with the reappearance of consumer durables on the civilian market. The results of fitting the model to the data of these years are shown in Table III. In interpreting the results, it will be useful to remember that the annual change in instalment debt outstanding is the difference between two relatively large variables, namely, credit extensions and repayments. Thus, if the extensions and repayments series have the variability which is normal in economic time series, the difference between them, the annual increment in the stock of debt, will exhibit great variability in relation to its size.[19] Therefore, it would be a mistake to extrapolate the increase in debt outstanding during one year without reference to changes in the preceding and subsequent years. Rather, the growth of instalment credit since the war should be viewed as a whole or at least in segments of several years' duration.

The estimate of r obtained by fitting (3) to income in 1945 and 1956 is 6.02 per cent. The estimate for a obtained by fitting (8) to data for the same years is .0107. Taken together, these figures imply a limiting ratio of instalment debt to personal income of 18.84 per cent. In Table III, the odd-numbered columns contain the actual values for personal income, instalment debt, changes in debt from year to year, expressed as a percentage of debt in the earlier year, and the ratio of debt outstanding to income. The even-numbered columns contain the

[19] For example, let x and y be random variables with the following statistical properties: the expected value of x, $E(x)$, is 39, $E(y)$ equals 37, the variance of both is 9 and their covariance is equal to 4.5. Then var $x/E(x) = 9/39$, var $y/E(y) = 9/37$, but

$$\frac{\text{var}\,(x - y)}{E(x - y)} = \frac{\text{var}\,x + \text{var}\,y - 2\,\text{cov}\,xy}{E(x - y)}$$

which is equal to 4.5.

TABLE III.—ACTUAL AND PREDICTED GROWTH OF INCOME AND INSTALMENT CREDIT, 1945–1956

	Actual $Y(t)$ / $\$10^9$ (1)	Predicted $Y(t)$ / $\$10^9$ (2)	Actual $D(t)$ / $\$10^6$ (3)	Predicted $D(t)$ / $\$10^6$ (4)	Actual Percent Change in $D(t)$ (5)	Predicted Percent Change in $D(t)$ (6)	Actual $\frac{D(t)}{Y(t)}$ (7)	Predicted $\frac{D(t)}{Y(t)}$ (8)
1945	171.2	171.2	2,462	2,462	—	—	.0144	.0144
1946	178.0	181.5	4,172	4,403	69.46	78.84	.0234	.0234
1947	190.5	192.4	6,695	6,460	60.47	46.72	.0351	.0336
1948	208.7	204.0	8,996	8,643	34.37	33.79	.0431	.0424
1949	206.8	216.3	11,590	10,955	28.83	26.75	.0560	.0506
1950	227.0	229.3	14,703	13,408	26.86	22.39	.0648	.0585
1951	255.3	243.1	15,294	16,007	04.02	19.38	.0599	.0658
1952	271.8	257.8	19,403	18,764	26.87	17.22	.0714	.0728
1953	286.0	273.3	23,005	21,685	18.56	15.57	.0804	.0793
1954	287.3	289.7	23,568	24,784	02.45	14.29	.0820	.0856
1955	306.1	307.1	29,020	28,069	23.13	13.25	.0948	.0914
1956	325.6	325.6	31,552	31,552	08.72	12.41	.0969	.0969

Sources: The data prior to 1956 for this table and for subsequent calculations were obtained from Statistical Appendix E of the *Economic Report of the President*, January 1957. The 1956 data were obtained from the *Survey of Current Business*, March 1957.

comparable figures "predicted" by the model. For our present purpose, the comparison between columns (5) and (6) is the most interesting. Considering the high variability of the $D(t) - D(t\text{-}1)$ series, the fit is surprisingly good and certainly good enough to justify the conclusion that the data in column (5) are not inconsistent with the hypothesis that their pattern of long-run development is that shown in column (6). The instances in which the fit is poor can be traced directly to short-run business cycles, and the positive errors resulting from cyclical upswings are approximately offset by the negative discrepancies in the recessions. If we extrapolate the postwar growth in instalment credit on the basis of this model, we may conclude that although debt will continue to grow more rapidly than income for some time, it will, in the limit, approach about 19 per cent of income. According to this reasoning, there is no reason to think that debt will swamp income or that the over-all postwar rate of growth of debt, when extrapolated correctly, is inconsistent with the continued growth of income.

The sensitivity of these conclusions to the assumption of particular beginning and ending points can be tested by calculating growth rates and the implied limiting debt-income ratios for different pairs of years. A sample of the results of such calculations for various years is shown in Table IV. The table shows that the limiting debt-income ratio is not very sensitive to the choice of years. It is not surprising that

extrapolation of the 1929-1956 data should indicate a lower ratio than that indicated by the postwar years. For although, in comparison with the postwar years, the rapid growth in income in the war years almost offset the stagnation of the 'thirties, economic conditions both during the war and during the depression, each for different reasons, inhibited the growth in instalment debt.

TABLE IV.—LIMITING DEBT-INCOME RATIOS IMPLIED BY THE DATA OF SELECTED SETS OF YEARS

Personal Income and Instalment Debt	a	r	$\lim \frac{D(t)}{Y(t)}$
1929–1956	.005702	.0506	.1184
1946–1950	.01268	.0627	.2149
1950–1956	.009977	.0620	.1709
1954–1956	.01265	.0646	.2085
1945–1956	.01070	.0602	.1884

III. *Conclusions*

The foregoing analysis contains both a theory of growth of consumer instalment credit and an interpretation of the postwar experience. The former, which was formalized in the model of debt-income growth, indicates that the rate of growth of instalment debt converges to the rate of growth of income with the passage of time and that, in the limit, the ratio of debt to income is stable. If the debt-income ratio is initially below its equilibrium level, then the relative rate of growth of debt will always exceed that of income, converging on the latter asymptotically from above. The debt-income ratio will approach its limit asymptotically from below. Thus, contrary to one popular view, it is not correct to suppose that a progression in which the relative rate of growth of debt exceeds that of income must be temporary and of short duration or must overburden consumers' budgets with repayments.[20] The model also shows that an (exponentially) increasing absolute rate of increase in the stock of debt is logically compatible with a declining relative rate of increase. Thus, contrary to another popular view, the fact that the relative rate of increase in the stock of debt must slow down does not imply that the absolute rate must also slow down.[21] However, it is the absolute rate of increase

[20] S. E. Harris and H. M. Groves, *op. cit.*

[21] Burck and Parker, *op. cit.*, used an incorrect method of extrapolation of the rate of increase of the debt-income ratio: ". . . instalment debt outstanding has grown from 5 per cent of consumers' disposable money income in 1948 to 10.9 per cent in 1955. If this rate of increase were to continue for another seven years, instalment debt outstanding would

which is relevant for the growth of durable-goods sales and national income. According to the model, this rate is proportional to income. Therefore, the growth of debt is *not* incompatible with continued prosperity.

Turning to the postwar experience, it is clear that the principal explanation for the very high growth rates of the stock of instalment debt is to be found in the abnormally low ratio of debt to income at the end of the second world war. Since the end of the war, the growth rate of instalment debt has converged toward the growth rate of income. Between 1946 and 1947, personal income grew by 7 per cent while instalment debt increased by 60.5 per cent. Between June 1956 and June 1957, personal income grew by 5.2 per cent while instalment debt increased by 7.5 per cent.[22] Considering the general instability of the postwar decade, the steadiness of the convergence has been quite surprising. Extrapolation of the growth rates of this period with the debt-income growth model points to a ratio of this type of debt to personal income of about one-fifth.

This analysis does not imply that a good case cannot be made for stand-by controls of consumer credit, for it may still be true that the existence of consumer debt intensifies business cycles caused by other factors, and that the availability of instalment credit exacerbates inflationary price movements. However, the analysis does suggest that consumer instalment debt has not grown, since the war, at a rate which cannot be maintained, contrary to widely held views. Thus recent experience does not presage an end to prosperity. On the contrary, the growth of instalment debt has been an important ingredient of the postwar boom. The statistical data presented in Part II indicate that at a certain stage in the life cycle, most people become net savers who desire to accumulate financial assets. On the other hand, at an earlier stage in the cycle, when they are forming families, most people become net dissavers. The growth of instalment credit has facilitated the channeling of the savings of older people to finance the deficits of the

have to rise to about 17 per cent of disposable income in 1962." Apparently they extrapolated linearly the change over the previous seven years. If this is what they understand by "the rate of increase of instalment debt," it is not surprising that they predict that it must slow down, for this "rate," if extrapolated, would lead eventually to an infinite ratio of debt to income no matter how small a positive increase took place in the ratio during the base period. In terms of personal income and instalment debt, their figures would be a ratio of debt to income of .0431 in 1948 and a ratio of .0948 in 1955 (see Table III, above), or an increase of .0517. Extrapolating linearly for another 7 years by adding the change over the past 7 to the 1955 ratio, one obtains .1465 as their "prediction" for 1962. The authors make it clear that they do not believe that the economy could support such an increase. On the basis of equation (9), the extrapolated debt-income ratio for 1962 is .1239.

[22] *Mo. Rev. Credit and Business Conditions*, Federal Reserve Bank of New York, Aug. 1957, XXXIX, 116.

younger group. As a consequence, the economic desires of both groups, from this point of view, are satisfied. If it were not for the growth of instalment credit, the savers would still attempt to save, but their saving would not be offset at high levels of income by the dissaving of the deficit sectors. The latter would have to accumulate durable goods at a slower rate out of current income. Thus, far from exerting a depressing influence on income, the growing stock of instalment debt has performed and can continue to perform an important and desirable economic function.

NEW ZEALAND'S EXPERIMENT IN ECONOMIC PLANNING

By J. B. Condliffe*

In December 1935 the New Zealand Labour Party came to power for the first time. It remained in office until December 1949. During that time it carried through a policy designed first to insulate the domestic economy from fluctuations in its external markets, and then, upon the basis of stabilized export receipts, to stabilize price relationships within the economy, redistribute the national income, establish a complete system of social security, and develop the national economy.

These fourteen years fall into three phases. The first prewar years were characterized by recovery from depression conditions and policies. The next six were war years. The postwar years 1946-49, with which this article is primarily concerned, were the crucial test of Labour's policies.

I. *The Labour Party's Program*

The prime objective of the policies of the Labour Party was to build in New Zealand a planned economy behind the shelter of regulated prices for exports and selective import controls. The preamble of the Labour Party program in 1933 had declared:

> Overseas prices and conditions cannot any longer be allowed to dictate New Zealand's living standards. By proper planning of production, with control of marketing and finance, New Zealand can establish her own living standard.

There was a militant wing in the party which believed that New Zealand was strangled by "finance capitalism" and that the only obstacle to the development of the country and rising living levels was "per cent interest." Those who believed this were not content to advocate the reduction of overseas debt. They advocated the use of state credit at low interest rates, or interest-free, to build homes, install hydroelectric plants, expand roads and railways and develop both primary and secondary manufacturing enterprises, as well as to finance social security. They were clear that their program would lead to socialization of production with maximum use of local resources and increasing

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self-sufficiency. The surplus of export goods was to be bartered for imported materials on long-term reciprocal bulk-purchase agreements. A book expounding these ideas, with a laudatory introduction by the leader of the Parliamentary Labour Party in Great Britain, ran rapidly through several reprintings in 1938 and 1939.[1] New Zealand was to set an example to the world by developing an economy free of public and private debt, and independent of the fluctuations in its overseas markets.

This prescription was not followed and the author soon afterwards lost his ministerial office, his membership of the party and his seat in the House. The government was not prepared to embark on the policies he advocated, and public opinion, despite the bitter experience of the depression and the persistence of a substantial minority of advocates of "costless credit," was not convinced that New Zealand could be made independent of the export market or develop into a utopia of stabilized relationships between the various segments of a socialized economy. The land was not socialized, nor farm and factory production, nor banking.

The depression of 1930-35 had been severe. Export prices had fallen heavily. The terms of trade worsened. The Coalition government had pursued orthodox deflationary policies, balancing the budget, and meeting heavy external debt payments at the cost of lowered living levels and massive unemployment. When Labour came to power in 1935 the worst was over. The budget was balanced, revenue was buoyant, export prices were rising and unemployment, though still high, was falling. Moreover London balances had been built to a comfortable level and the Reserve Bank which opened in August 1934 had redeemed Treasury bills held by the trading banks so that credit within New Zealand was abundant and cheap.

Labour had a mandate to raise wages and expand social security, to undertake public works and promote employment. It had also promised to buy all exports of wool, meat, dairy produce and other exports at a price to be fixed so that it would return a reasonable standard of living to the farmers. The wool and meat growers rejected the offer, preferring to market their own produce through established private channels. The dairy farmers welcomed it. When the war came, all exports were bought by the Marketing Department of the government, and except for wool this arrangement continued into the immediate postwar years.

From 1935 to 1939, therefore, Labour pursued a reflationary policy. Wages were restored to predepression levels, hours were reduced from 44 to 40, and working conditions were improved. Social welfare pay-

[1] J. A. Lee, *Socialism in New Zealand* (London, 1938).

ments were increased and in 1938 a complete system of social security, including free medical and hospital service, was introduced. Increased productivity and rising export prices till 1938 made possible these generous policies. They met with widespread popular approval, despite the running-down of London balances caused partly by capital flight, partly by overimportation. The election of November 1938 gave Labour an overwhelming victory, but exchange control had to be introduced a month later. The test of its policies might have had to be faced soon thereafter if the war had not come along.

The war was financed along orthodox lines. Taxation was heavy. There was a broad response to the issues of public loans. People worked hard and saved hard. Public works were restricted to war necessities. Consumption, especially of imports, was cut down. The surpluses in the economy were mobilized for war expenses. Insulation was maintained during the war against rising instead of falling export prices. Stabilization of wages, rents and prices was achieved by preventing the income expansion that would have been generated if the increased export receipts had not been segregated in special accounts and if taxation and war loans had not mopped up income surpluses. The government did not use its control over the Reserve Bank to finance the war.

II. *The Situation in 1946*

New Zealand emerged from the war taut with suppressed inflation. The government was in a difficult situation politically as well as economically. After the first popular years of reflation, the arduous war effort had been carried to a successful conclusion. New Zealand had contributed its full share to the Allied victory, in Europe, as in the Pacific. The people had worked hard and gone without imported amenities. The farmers had acquiesced in relatively low prices for their produce and had seen the growing surplus of export receipts withheld by the government. The trade unions had sacrificed the forty-four hour week and many hard-won gains in working conditions and had for the most part accepted the freezing of wages at 1942 levels. But the government had steadily lost support. An election in November 1946 reduced its working majority to 3 in a House of 80, so that the 4 Maori members held the balance of power.

When the war ended, there were barely suppressed demands for greater imports, for higher wages, higher guaranteed export prices and the restoration of labor legislation. In monetary terms at least, the means were available to satisfy these demands. With rising export prices and import control, London balances had accumulated, the budget was balanced and the government had ample power to expand

domestic credit. In 1936 it had nationalized the Reserve Bank. In 1945 it had taken full control of the Bank of New Zealand which did 40 per cent of the banking business of the country.

But in 1946, unlike 1935, there was full and even overfull employment of resources, including labor. A strategically placed observer compared the economy to a ship in full sail with every stitch of canvas set and very little freeboard. When Frank Langstone, the chief advocate within the Labour Party of ideas closely akin to Douglas Credit, had moved at the Party Conference in 1944 a demand that the Bank of New Zealand be nationalized, he compared his motion with Archimedes' demand for a lever to move the world, and concluded, "Here's the lever, Mr. Nash. It will make it possible for the sunshine of economic prosperity to shine in even the darkest places."

Walter Nash, the Minister of Finance into whose reluctant hands the lever was pressed, accepted but did not use it. He knew that what Archimedes had asked for was not only a lever, but a fulcrum and a place to stand on. When there are unemployed resources, as there were in 1935, credit expansion and public spending may move an economy from depression to prosperity. When resources are already strained, as they were in 1946, credit expansion exerts its effect through the price system which has nowhere to go but up.

When peace diminished the public readiness to accept sacrifices in a common cause, the government's economic policies were exposed to a crucial test. The results of that test are canvassed in the remainder of this article. Attention must first be paid to the attempt by import control and fixed export prices to insulate the national economy from fluctuations in the external market. Then the major objectives of domestic economic policy are considered in turn—the stabilization of domestic price relationships, the redistribution of income, and national economic development. To achieve these objectives reliance was placed primarily upon persuasion, with the Minister of Finance (who was also Minister of Customs and Minister of Marketing and therefore controlled both imports and the prices paid for exports) as the ultimate arbiter. Primarily he relied upon the power of the public purse to reinforce his persuasive efforts, but he could always resort to credit creation, and was under constant pressure to do so. When export prices fell in 1949 he was forced to this expedient.

III. *External Stabilization, 1946-49*

Export receipts generate a high proportion (about 25 per cent) of New Zealand's national income. A very much higher proportion (over 80 per cent) of her imports are producers' equipment, materials and

fuels. Price movements in overseas markets are therefore of great concern.

When the war ended, the woolgrowers resumed wool auctions. They had accepted government control of marketing only for the duration of the war and the bulk-purchase agreement negotiated with the British government expired with the 1945-46 season. Wool represented 30 per cent of the total value of exports, and prices rose sharply in export markets. Early in 1946 a Wool Disposal Commission had been set up to liquidate stocks accumulated (by Britain) during the war. The woolgrowers agreed to pay a levy on exports—7½ per cent of the sale value in 1946-47, 5 per cent in 1947-48 and 2½ per cent in 1948-49—in order to finance the Commission. Except for this levy the higher wool prices were paid to the growers and the government did not attempt to intercept this substantial addition to the national income.

Bulk-purchase agreements covering the exports of the other principal exports—meat, butter and cheese—had been negotiated for periods that extended beyond 1949. The Marketing Department continued to buy from the farmers all of these commodities they produced at a price fixed by the Minister. As prices rose in overseas markets and the government's receipts swelled, there was irresistible pressure from the producers for the so-called "guaranteed prices" to be raised. The government had paid off a substantial amount of long-term public debt held in Britain, as well as war advances, and had made substantial gifts to Britain. Still the export receipts were sufficient both to pay higher prices to the producers and to accumulate large reserves in the marketing accounts. The higher guaranteed prices, like the much sharper appreciation of wool prices, increased the national income.

In 1948 this expansion of purchasing power within the country was slowed temporarily, but not halted, by appreciating the currency to parity with sterling. As the opposition party, Labour had opposed depreciation in 1933, but after coming into power it had failed, until 1948, to implement its promise to bring the exchange rate back to parity with sterling. In that year it was faced with inflationary pressures beyond its control. Export prices had risen sharply and import prices also. At the price-levels current in New Zealand the currency was undervalued. By March 31, 1948, despite reductions amounting to £45 millions in the public debt held overseas, London balances had risen to £84 millions. There was strong agitation from the trade unions for increased wages and from the farmers for higher prices.

In August, before the new season's exports began, the government announced the return to sterling parity. It was well-timed and its effects were salutary. The move was not widely anticipated, so that speculation was at a mimimum. Export receipts were not greatly dimin-

ished because wool prices rose further and the new season's bulk-purchase-agreement prices were raised by 16-18 per cent. But import costs were reduced and manufacturing profits fell. The Reserve Bank was compensated by the Treasury for the loss in New Zealand currency incurred on sterling balances. The disparity created with the Australian pound was not serious because exchange control remained operative. The Customs continued to assess duties as if the Australian pound was at par, thus collecting some extra revenue and giving local industries extra protection from their nearest competitors.

Concessions had to be made also to the pent-up demand for imports in the postwar period. Behind the shelter of exchange control and war shortages a great number of local manufacturing industries had been developed. They increased the need for imported equipment and materials. After 1945 it was impossible to maintain the rigid import selection practiced during the war. Total imports in 1945 were £55.1 millions. In the next year they jumped to £71.6 millions, and in 1947 to £128.6 millions. The greater part of the increase was in equipment and materials for the new manufactures, but consumers' goods also rose from £11.5 millions to £26.8 millions between 1946 and 1947.

Stabilization is a blessed word, much used in difficult periods of fundamental economic change and therefore violent price fluctuations. But what does it mean? If it is simply a mechanism whereby export prices may be averaged over good and bad years, accepting the trend but smoothing the fluctuations in world markets, there is much to be said for it. But the smoothing tends to be combined, as it was in New Zealand, with other objectives. There is a good case not only for averaging prices to the producer, but also for compensatory public expenditure and credit expansion in bad years, balanced by retrenchment in good years. This case is blurred when such notions are added as a "reasonable standard of comfort," a reasonable remuneration based on production costs, the development of national resources, autarky, full employment, social security, and at the same time a more equitable distribution of the national income.

If all these objectives are aimed at simultaneously, as they were in New Zealand, the government must control all the elements of the external balance of payments—imports as well as exports. Full employment, interpreted to mean that hardly anyone is ever out of a job, can be maintained only by an unsatisfied demand for local production. To prevent this demand turning to imports, government must restrict imports so as to keep supply below demand. There is no alternative to complete control of external transactions. But, in addition, the government must embark upon a thoroughgoing control of the domestic economy.

In the years 1946-49, the sharp upward rise of prices in New Zealand's export markets, followed by a substantial fall in the export season 1949-50, posed difficult problems to the government's stabilization program. The currency appreciation of 1948 was well executed, but it did not do more than damp down for a brief spell the inflationary pressures on the economy. The trade unions still pressed for higher wages and the farmers for higher prices. When export prices fell in 1949-50, costs and prices were still on the upward slope. Government expenditures were rising but tax revenue was falling and sources of domestic loans were drying up. The government therefore resorted to the Reserve Bank for advances to maintain its expenditures.

In the last war years and in 1946-47 it had substantially reduced its borrowings from the banking system. It increased them by £11.5 millions in 1947-48, and decreased them slightly in the following year, only to increase them by £23.3 millions in the bad year 1949-50 when Britain suffered a severe crisis and was forced to devalue sterling. It was mainly this domestic monetary expansion to offset a fall in export receipts, followed as it was by the Korean war boom, that caused the subsequent inflation of trading bank advances in New Zealand. It was unfortunate that 1949, the last year of Labour's tenure of office, was a bad year for exports and forced resort to credit creation. The inflationary pressures thus set in motion persisted long after Labour lost the election at the end of 1949.

IV. *The Program of Domestic Stabilization*

Between 1945 and 1949, the prices of export goods rose by 47 per cent in New Zealand and more abroad. There was therefore a considerable increase in available purchasing power. Local prices rose by 22 per cent at wholesale and by only 12 per cent at retail.

When imports increased substantially in the years 1946-49, their prices were substantially higher than the levels at which prices had been stabilized during the war in New Zealand. The effect of these higher import prices was disruptive. Import prices rose by 23 per cent, even allowing for the 25 per cent appreciation of the currency. The wholesale prices of these imported goods were held to a 12 per cent increase. The strains on the domestic stabilization program imposed by these differential movements were considerable.

In these crucial postwar years, therefore, it proved impossible to insulate the local economy from the influence of the external market. Local prices rose and the attempt to regulate their rise strained the stabilization machinery to the breaking point. Apart from differential price movements, the administrative difficulties of import selection and licensing were formidable. The customs officials and ultimately the

Minister attempted "in far too great detail to determine centrally the import desires and requirements of the community."[2] Delays, uncertainties, and in some lines recurring gluts and shortages, did not encourage the public to accept the Labour argument that planning was superior to the operations of the price system.

New Zealand is a small country with a relatively simple economic structure. But the complexity of price relationships was greater than could be effectively handled by administrative regulation. There is always a tendency for planners to underestimate the subtlety of the free-market mechanism. It is not easy for regulating authorities to make decisions that do not disturb the intricate networks of relationships that in a freely operating market are adjusted by the dispersed decisions of individual producers and consumers.

Under regulation there is a hardening of group relations. Trade associations are formed and gain power, as do trade unions and farm groups. These organized groups naturally urged their claims to the very limit of their political and economic influence. Their pressures put the Minister in the position of an economic arbiter, at the same time as he was carrying an immense burden of detailed administrative responsibility. His considerable powers of exposition and persuasion were used to the full, but they did not prevent the stabilization mechanisms from deteriorating into a leapfrogging competition among farmers, merchants, manufacturers, and trade unionists for higher prices and wages.

What broke the system finally, more than any other single factor, was organized trade union pressure, through the Arbitration Court and by strike threats, for higher wage levels. Nominal wage rates crept up and hours were reduced. Until 1950 the Court was limited in its awards by the stabilization legislation of 1942. In a condition of full employment, however, earnings above the award rate could be obtained, especially by the strongly organized industrial unions. Strikes became more frequent from 1946 onward. In general the Labour government was conciliatory in its attitude towards the unions. The farmers and the floating voters in the towns chafed under this apparent deference to organized unionism.

The stabilization of price relationships within the domestic economy had been formalized by legislation in 1942 which froze rents, wages, public utility charges and prices of a selected list of necessities. In order to keep stable the relationships thus established when external prices were rising and income was expanding, the government resorted to a combination of regulation and persuasion, supplemented by sub-

[2] R. F. Wilson, "Import Control in New Zealand," *Econ. Record*, June 1950, XXVI, 55-56.

sidies. Too heavy and detailed a burden was thrown on ministers and especially the Minister of Finance. The departments through which the regulations were administered had not been recruited for such tasks. There was no economic general staff and no plan buttressed by detailed statistics and market surveys. It is by no means clear that such a staff could have been more successful, but in default of econometric calculations decisions were made by ministerial judgment, balancing economic considerations and political pressures.

It was asking too much of a democracy to expect that public opinion would accept as disinterested even the wisest judgment of a minister under constant pressure from his own party and its supporters. The feeling grew that he was the prisoner of the partisans of monetary expansion and of the militant trade unions. Whether this feeling was justified or not, it revealed the essential weakness of the attempt in a democracy to control by persuasion. The ultimate court of appeal is public opinion and in the 1949 election it rendered an adverse verdict.

There were of course many factors contributing to the electorate's loss of confidence in the Labour government. Fear of inflation was one of them. The struggle among contending segments of the economy for an increased share of the national income, as well as resentment against the growing network of controls and general discontent with a government that had been in office for fourteen years were also evident.

Much of the Labour program commanded broad public support. This was particularly true of the social security legislation. There had been little effective criticism either of the restoration of employment, wages and working conditions after the depression, or of the wholehearted war effort. But this did not mean that the electorate had accepted the socialist philosophy. There was much latent support for the opinion early expressed by Souter that "it is not the duty of the State to provide the whole of New Zealand with a high standard of living."[3] Opinions might differ as to the economic role of the state in an ideal society; but many people were alarmed by the realization that the Labour program, as it developed, was based on "a philosophy which is hardly consistent with capitalist democracy."[4]

Such alarm was reinforced by the feeling in many quarters that Labour had temporized with the Communist or party-line leadership of some trade unions and civil service associations. After the National government had taken strong steps to break the power of this leadership in a bitter series of waterfront and other disturbances in early

[3] R. W. Souter, "How Do We Want the New Zealand Economy to Behave?," *Econ. Record*, Suppl., Oct. 1939, XV, 7-16.

[4] H. Belshaw, "Guaranteed Prices for New Zealand Exports," *Econ. Record*, Dec. 1937, XIII, 168-88.

1951, it appealed to the country and was returned with an increased majority, which seemed to indicate that public opinion was against the Labour Party's attitude in these matters.

In fact the Labour government made no attempt to carry the socialist philosophy to its logical conclusion. Its left-wing minority had prophesied disaster if their program of a completely planned economy based on costless credit were not adopted. This was not done. Interest was not abolished and neither the Reserve Bank nor the Bank of New Zealand was used to any great extent as a means of creating credit. Yet public opinion became increasingly conscious of the far-reaching powers vested in ministers to control and regulate credit, prices and the economy in general. Restiveness on this account played a role in the ultimate rejection of this part of Labour's program. It is natural for a democracy to be fearful of concentrations of centralized power, however capable and benevolent the holders of that power may be.

V. *Redistribution of Income*

In the first prewar years of Labour's tenure, 1936-38, a substantial redistribution of income was carried through. This was primarily a correction of the inequities resulting from the previous government's attempt to cope with depression by deflationary policies that went too far and were continued too long. Wages were raised, hours reduced, and social security extended.

Between 1938 and 1942 the lower-income groups lost ground again and the stabilization arrangements after 1942 did little more than enable them to hold their own. They lost ground again during the demobilization period after the war.

The net result of these changes, as shown in Table I, was that in

TABLE I.—DISTRIBUTION OF PRIVATE INCOME IN NEW ZEALAND, 1938-1949[a]

(percentages)

	1938–39	1943–44	1944–45	1945–46	1946–47	1947–48	1948–49	1949–50
Salary and wage payments	55.6	42.4	43.3	44.9	47.0	47.2	49.1	47.7
Social security benefits	3.9	4.8	5.2	5.8	8.8	8.5	8.5	8.1
Armed Forces pay	0.4	17.5	14.2	11.1	2.1	1.4	0.9	0.9
Rental value: Owner-occupied houses	3.1	2.5	2.6	2.5	2.3	2.2	2.3	2.1
Other personal income	27.2	21.8	23.5	24.1	27.7	28.9	28.9	30.2
Company income	9.8	11.0	11.2	11.6	12.1	11.8	10.3	11.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] *New Zealand Official Year Book* (1954), p. 664, and "Report on the Official Estimates of National Income and Sector Accounts for the year 1955-6."

1949, so far from salaries and wages representing a larger share of national income, they were a smaller percentage than they had been in 1938. At no time did they regain their prewar share. It is true that both nominal and real wages increased after the war, but the increase was less than that of incomes of other economic groups. It could be argued that these figures prove only that the farmer (and other producers) got more, not that the worker got less. But this does not alter the fact that the worker failed to get his proportionate share of the postwar prosperity.

It could also be argued that most of what was lost in salaries and wages was gained in social security benefits. These covered the whole population and were financed mainly by a flat tax on income. They therefore entailed some redistribution, but the statistical evidence is that the wage-earner did not gain a greater share of the national income. Calculations of income distribution in the United States are not strictly comparable, but the wartime decline in the share of wages was less and the postwar recovery greater than in New Zealand. The percentage share of wages and salaries (private, government civilian, and other, but not military) in the United States was 63.5 in 1939, 53.8 in 1945 and 61.6 in 1949.[5]

After price stabilization was effectively organized in 1942, the Arbitration Court proved to be "a good guardian of real wages." But a carefully documented study, published in 1951, concluded that it could not function successfully to redistribute income.[6] Thus it is not surprising that the stronger and more militant unions resorted to direct wage bargaining supported by strike threats. Stabilization and income redistribution had not proved compatible. It was ironical that partiality towards organized unionism should have been one of the causes of the Labour government's defeat in 1949 when in fact the share of wages in the national income had fallen substantially from its prewar peak. The more militant workers were not content with stabilized wages which in fact meant a smaller share of an expanding national income. They had a good case, but the methods they used to advance their case irritated and finally alienated public opinion.

VI. *National Economic Development*

There is no doubt that the extensive public works undertaken by the Labour government were effective in developing the country. The construction of roads, railways and hydroelectric installations was

[5] *Cf. Surv. Curr. Bus.: Suppl.*, "National Income, 1954," pp. 162-63.

[6] J. V. T. Baker and H. G. Lang, "National Income and Wages Policy: the New Zealand Picture," *Econ. Record*, Dec. 1951, XXVII, 190-206.

pushed vigorously. There is no evidence that engineers and architects working as public servants were less efficient or imaginative than they might have been in a system of private enterprise. The public accounts were carefully kept and there was never any suggestion of corrupt practices. The Labour administration was thoroughly honest, as indeed other administrations have been. The standard of public morality is high in New Zealand. The country is small, there is full publicity and rigorous audit. It is true that, as the public sector expanded, the accounts grew more complex so that it became difficult to assess the financial situation as a whole. There were criticisms of the way the budget was presented to Parliament.[7] The difficulty of understanding the full implications of the annual financial statements added to the uneasiness of those who were critical of the great powers vested in ministers and especially in the Minister of Finance; but there was never any suggestion that those powers were improperly used.

The substantial question is whether the program of construction went too fast and too far. It helped to maintain full employment and to generate the inflationary pressures associated with it. In an inflationary spiral, however mild, there are always shortages of equipment and power, so that there is always demand for more construction. Much of this demand sprang from the development of secondary industries behind exchange control. Some of it was associated with immigration, which in its turn was designed to meet a shortage of manpower. As long as export prices kept on rising, the costs of such rapid development were bearable; but the situation was precariously dependent upon the maintenance of prosperity in overseas markets.

When the Labour government took office it was not clear that New Zealand could continue to enjoy free access to a constantly expanding market for its exports of food and raw materials. The United Kingdom in 1934 had actually imposed restrictions on meat imports and there was talk of a quota on butter. A strong argument could therefore be made for the promotion of secondary industries to provide employment for a growing population.

The fears of shrinking markets did not materialize at the close of the war. On the contrary there was strong demand at sharply rising prices for all the wool, meat, butter and cheese that New Zealand could produce. The trend was in striking contrast with the uncertainties and crises that followed the first world war. Between 1945 and 1949 the export prices of pastoral products rose by 50 per cent, while the quantity of wool exported more than doubled and that of butter increased by 50 per cent. Table II gives ample evidence of the strength

[7] C. G. F. Simkin, "Budgetary Reform in New Zealand," *Econ. Record,* June 1942, XVIII, 16-30.

of overseas markets. Not until 1957 was there a sharp fall in butter prices, mainly as the result of subsidized milk production in the United Kingdom.

The soundness of the program for developing secondary industries, and to some extent that of the public works necessary to promote them, must be appraised against this background of a favorable export market. More than a decade has passed since the war ended. No financial crises comparable with those of 1919-20 and 1929-33 have occurred. More flexible monetary policies in the major industrial countries have indeed supported high and rising price-levels. Periodic strains on the British economy and the subsidizing of United States surpluses have had unfavorable effects; but the British market has continued to absorb the bulk of New Zealand's exports. Population is growing rapidly all over the world and the production of food barely keeps pace with the increase. Animal products are in particularly short supply. Many food-producing areas are now engaged in programs of industrialization and at the same time their standards of living are rising rapidly so that export surpluses diminish. New Zealand has gained substantially from these developments and seems likely to gain more in the foreseeable future. In the circumstances there does not seem to be any compelling reason why it should strive to expand its secondary industries when they are not competitive with imported goods. The rapidity of their expansion has strained the power resources of the country and necessitated rapid extension of transport as well as power. It is not clear that this development maximizes national income.

TABLE II.—VALUE OF PRINCIPAL EXPORTS, 1945–1955

(N.Z. millions)

Year	Wool	Meat	Butter	Cheese	Total Exports
1945	12.7	17.6	19.3	9.5	81.6
1946	26.6	23.2	19.8	8.4	101.3
1947	32.0	29.4	28.8	11.6	129.4
1948	44.5	27.6	33.8	11.2	147.8
1949	46.6	27.2	35.4	12.7	147.3
1950	74.7	28.6	35.6	14.5	183.8
1951	128.2	25.4	41.4	16.7	248.1
1952	82.0	40.5	55.9	15.5	240.6
1953	84.3	39.9	51.5	18.4	235.9
1954	88.4	51.9	44.8	16.4	244.4
1955	93.8	68.2	50.7	13.4	256.7

The grassland industries supply 95 per cent of New Zealand's exports. Equipment, materials and fuel for the secondary industries account for more than 80 per cent of the imports. It is therefore dis-

quieting to find that during the period of planned development, the rate of increase in pastoral productivity declined. In part this was the result of war shortages of fertilizers, equipment and manpower, but it continued and was indeed most marked in the immediate postwar period. Table III indicates the quinquennial percentage rates of increase in the animal units and the total farm production, based on units of protein equivalents. This is a measure of the volume of production, the significance of which was masked by sharply rising prices.

TABLE III.—QUINQUENNIAL PERCENTAGE INCREASES IN FARM PRODUCTION[a]

Period	Livestock Units[a]	Total Farm Production
1915–19 to 1920–24	5	25
1920–24 to 1925–29	13	12
1925–29 to 1930–34	13	25
1930–34 to 1935–39	8	9
1935–39 to 1940–44	3	8
1940–44 to 1945–49	2	1

[a] Equivalent of 1 cow in milk = 6 breeding ewes = 8 dry sheep = 1½ beef breeding cows and heifers over two years = 2 other cattle.

Sources: H. D. Orchiston, "Fertilisers, Lime and Farm Production in New Zealand since 1900," Canterbury Chamber of Commerce Agric. Bull., No. 316, Nov. 1955. *Cf.* also E. J. Fawcett, "Some Aspects of the Future of Agriculture in New Zealand," *Proceedings of the Ruakura Farmers' Conference Week* 1954 (Wellington, 1954) pp. 83–98.

Such a slackening in the rate of increase in the main exporting industries was a heavy price to pay for the development of protected secondary industries. Industrialization is not easy in New Zealand. The country is singularly deficient in minerals and despite diligent search only a trickle of petroleum has been found. There are limited deposits of bituminous coal of coking quality, but they are expensive to mine and transport. Expensive tests have shown that ironsands can be smelted by electric furnaces using sub-bituminous coal. In 1937 the Labour government passed an Iron and Steel Industry Act; but the production of iron ore in 1952 was only 1,823 tons. New Zealand could, at a price, produce steel. But the real questions involved are economic rather than technical. Practical experience, as well as economic theory, suggests that the national income will be higher if New Zealand exports the produce of its magnificient pastures and imports its steel, rather than burdening its efficient exporting industries with the high cost of supporting local manufacture.

Not even the textile industries are favorably placed for development. New Zealand produces wool but only 6 per cent is manufactured locally. The woolen industry has grown up in small and widely separated units. Specialization has not been achieved and the industry has

never been able to produce on a large scale or compete in export markets. There is no cotton. The small size of the market makes it cheaper to import than to manufacture synthetic fibers. Numerous clothing and footwear industries have been established, but despite protection their profits do not compare favorably with those of other industries.[8]

The secondary development that sheltered behind exchange control and import selection was small scale. Of the 8,512 establishments classified as factories, 3,443 employed less than 6 workers and another 2,016 employed from 6 to 10. It is doubtful whether the multiplication of such workshops can be claimed as economic development, particularly when their creation was accompanied by a slackening in the rate of increase of the strong exporting industries.

VII. *Conclusion*

Any general statement concerning the fourteen years of Labour government would be presumptuous since it could only record a personal judgment. Much of the Labour program has been accepted. The social security legislation, the regulation of wages and working conditions, the conduct of state enterprises and the reliance upon local rather than overseas borrowing met with general approval. State intervention is not new in New Zealand, though the pattern of production remains one of private enterprise, particularly in the basic pastoral industries, but also in manufactures and services.

In 1949 the voters rejected the further extension of intervention based on socialist principles. There has since been some loosening of controls and devolution of ministerial powers. The only major reversal of state ownership has been in housing. The Reserve Bank and the Bank of New Zealand have not been restored to private ownership. The former has achieved a somewhat greater measure of independence and the latter has functioned very much as it did under private ownership. The broadcasting system, domestic airways, and some minor industries are still operated as state enterprises. The marketing of exports has been returned to the producers. Lending for the purchase of land and houses is still largely a government function. Much of the Labour program remains in effect though its administration has been modified.

What was rejected in 1949 was the ultimate goal of socialization based upon domestic monetary expansion. As before in their history,

[8] G. C. Billing, "Industrial Organization in New Zealand," *Econ. Record*, June 1936, XII, 47-56 and "Size and Efficiency in New Zealand Industry," *Econ. Record*, June 1937, XIII, 58-65. "The Industrial Pattern and New Zealand's Future," *Econ. Jour.*, Mar. 1957, LXVII, 65-73.

New Zealanders took a pragmatic attitude. They were prepared to use the machinery of government to achieve specific economic objectives; but they were not ready to adopt a doctrinaire position and push their experiments beyond the limits of expediency. In particular they abandoned as unworkable the theory that the whole economy could be regulated by ministerial discretion.

EFFECTS OF CONSUMER ATTITUDES ON PURCHASES

By EVA MUELLER*

In recent years the consumer has begun to earn a reputation with business cycle analysts and economists for being unpredictable or temperamental in his spending behavior.[1] We have witnessed a number of fluctuations in consumer spending—some of considerable importance—which could not be explained by the level of, or changes in, consumer incomes. One of the most striking instances was the recession in discretionary consumer spending in 1951, at a time when personal incomes were rising.[2] Another was the sharp increase in the level of consumer spending in the winter of 1954-55 which exceeded the increase in personal income occurring at that same time. In the short run at least, autonomous variations in consumer spending do occur. The Economic Behavior Program of the Survey Research Center is engaged in research based on the proposition that measurements of consumer attitudes—of people's optimism and confidence—can help to explain and predict variations in consumer spending which cannot be explained by income changes.[3]

This proposition can be tested at two levels, the aggregative and the individual. "Aggregative tests" start with the construction of time series from the expressed attitudes of representative samples of the American population. These attitudinal time series may then be checked against time series for aggregate consumer purchases in the United States, or even purchases of specific goods. For example, if

* The author, who is assistant program director at the Survey Research Center, University of Michigan, is greatly indebted to George Katona for his advice throughout all phases of this study as well as for many helpful ideas. She also wishes to express her gratitude to Ralph Bristol who supervised the statistical analysis and to Robert Hsieh who participated in it. The collection of the data as well as the analysis reported here were made possible by a grant from the Ford Foundation to the Survey Research Center for studies of the "Origin and Effects of Economic Attitudes." Several further publications will be based on these studies.

[1] See for example the *Economic Report of the President* transmitted to the Congress, January 24, 1956, pp. 49 and 107.

[2] "Discretionary" consumer spending denotes spending on such items as consumer durable goods, vacations, and luxuries. Expenditures may be discretionary either because they are for nonessentials or because they are postponable (*i.e.*, replacement of durable goods).

[3] Relevant here are attitudes and opinions which are responsive to short-run changes in the economic environment rather than personality traits or attitudes evolved over a long period of time.

the attitudes of the American people were more optimistic at time-point I than at time-point II, is it true that the aggregate ratio of consumer purchases to disposable income was higher following time-point I than following II? Tests at the individual level require interviewing the same people at least twice in succession. Such tests tell us whether a group of individuals who were optimistic at time-point I were more likely to make major expenditures following time-point I than a group who were more pessimistic. This we shall call the "reinterview test."

Evidence of the influence of consumer attitudes on spending, derived from the aggregative test, has been presented in several previous publications.[4] It has been shown that consumers' attitudes and their rate of discretionary spending exhibit similar movements over time. At certain times there have also been indications that changes in consumer attitudes lead changes in consumer spending.

An extensive reinterview test of the influence of consumer attitudes and expectations on consumer spending was initiated in June 1954, when a representative cross-section of 1,150 urban families in all parts of the country was interviewed for the first time. Subsequently 3 additional interviews were taken with these families in December 1954, June 1955, and December 1955. In all, 4 complete interviews were obtained from 800 families at half-year intervals. This material enables us to relate initial attitudes and attitude change to subsequent spending and saving patterns of the same families, holding constant a number of other variables.

It should be clear at the outset that one should not expect the reinterview test to show more than a marginal effect of attitudes on purchases.[5] First, at the individual level the decision to spend is governed by a multiplicity of factors—age, family status, home ownership, place of residence, breakdown of old durable goods, personality traits, income level and income change—to mention only a few. Some of these cancel out in the aggregate (their distribution in the entire population is almost constant over considerable periods), but they have a pronounced impact on individual decisions. Second, when attitudinal measures are used to classify people into groups of optimists and pessimists, it is assumed that these measures permit us to make interpersonal comparisons. In fact, however, these classifications are only approximately accurate. This problem does not arise in connection with the aggregative test, where comparisons are made between

[4] See G. Katona and E. Mueller, *Consumer Attitudes and Demand, 1950-52* (Survey Research Center, University of Michigan, 1953); and by the same authors *Consumer Expectations, 1953-56* (Survey Research Center, University of Michigan, 1956).

[5] The limitations of the reinterview test have been discussed by G. Katona in "Federal Reserve Board Committee Reports on Consumer Expectations and Savings Statistics," *Rev. Econ. Stat.*, Feb. 1957, XXXIX, 40-45.

answers to identical questions given by large representative samples of the population at two points of time, rather than between individuals with different expressed attitudes.

I. *Analysis Plan*

The dependent variable in this investigation is the *number* of major expenditures made by the family rather than dollar amounts spent. This choice was made in part because number of purchases could be determined readily for half-year periods for a comprehensive list of items, while dollar figures were collected only on a calendar year basis and for a somewhat smaller number of expenditures. However there is also a conceptual basis for studying number of major purchases. It might be assumed that the state of consumer confidence influences primarily the decision to go ahead with a desired purchase or to postpone it. Any further influence it exerts on the amount spent (buying a cheaper or a more expensive TV set; a new or used car) may be of lesser importance.

Included in "number of purchases" are expenditures for cars, large household goods, additions or repairs to the home, and major nonhousehold expenditures (for power lawnmowers, musical instruments, speed boats, typewriters, etc.). Excluded are medical and educational expenditures—which are largely nondiscretionary—and vacations—which are strongly seasonal and which do not always involve a major expense.[6]

The major independent variables are two composite measures of consumer attitudes. There are strong reasons to believe that indexes based on several attitudes are more meaningful and bear a more stable relationship to behavior than do answers to single attitudinal questions. This is the case in part because answers to individual questions are subject to some margin of error. People with the same expectations may appear to give different answers, according to their mood, their understanding of the question, their mode of expression, and the interviewer's interpretation of the answer. When answers to several questions are combined the impact of such misclassification is greatly reduced. Second, consumer buying inclinations are likely to depend on a variety of attitudes—some concerned with present conditions, others

[6] Specifically, five categories of expenditures were counted: (1) buying one car, (2) buying a second or third car, (3) buying one or more major household goods, (4) making major repairs or improvements on one's home or apartment, (5) making one or more major nonhousehold expenditures (as defined above). For each family the number of categories which applied in each half-year was computed. Thus the maximum number that could be obtained in any half-year was five, in an entire year 10. Actually, no family scored more than 4 for a half-year, nor more than 6 for a whole year. The average number of purchases per family in our urban sample was 1.52 for the year June 1954-June 1955, and 1.02 for the half-year June-December 1955.

with expectations for the future; some with personal finances, others with the national economic outlook or with buying conditions. At any one time, some of these attitudes may make for spending, while others inhibit spending. Gestalt psychology tells us that the meaning and function of any part of a psychological field depends on the whole to which it belongs. It is likely therefore that composite measures of attitudes have a stronger and more stable relationship to behavior than have any of their components.

Our primary measure in this study is an index of consumer attitudes constructed from answers to six attitudinal questions: (1) whether the family is better or worse off than a year earlier, (2) its personal financial expectations for the coming year, (3) its one-year expectations regarding business conditions, (4) its longer-range economic outlook, (5) its appraisal of buying conditions for household goods and clothing, (6) price expectations. Tentatively, the six components of the index have been given equal weights.[7]

A second measure of attitudes toward spending is an index of buying intentions. Data have been collected on expressed intentions to buy houses, cars, durable household goods, to make home improvements or repairs, and to make major nondurable goods expenditures. Only plans which respondents rated as having at least a fair chance of fulfillment were considered. Each family was scored 0 = no such buying plan, 1 = any one type of plan, or 2 = two or more categories of plans. This measure is an indicator of willingness to spend, rather than a predictor of specific purchases. It is presented and tested here for the first time.

Two questions may be asked about the relation between attitudes and spending behavior: To what extent do consumer attitudes influence spending? And second, how useful are data on consumer attitudes and buying intentions for forecasting consumer demand? Although these questions are closely related, they must be approached somewhat differently. When we are testing the forecasting value of attitudinal data, we must work with variables which can be known in advance, such as past income and attitudes at the beginning of the forecasting period. We must disregard changes which occur during the forecasting period—either in people's financial situation or in their attitudes. Previous analyses of the relation of consumer attitudes to purchases have been concerned with forecasting value only.[8] The present study, on the other hand, is concerned also with the influence of consumer attitudes. This means that we may use variables in this part of our

[7] An index including these six components has been computed and published by the Survey Research Center over the past four years. The index is described in detail in Katona and Mueller, *Consumer Expectations, 1953-56, op. cit.*, pp. 91-105.

[8] See L. R. Klein and J. B. Lansing, "Decisions to Purchase Consumer Durable Goods," *Jour. Marketing*, Oct. 1955, XX, 109-32.

analysis which can be known only *ex post,* such as current income and the attitude change during the period under study. We shall use the two approaches in turn, starting with the influence of attitudes and then turning to the forecasting value of the index of consumer attitudes and the index of buying intentions. The analysis covers two periods for which data have been collected: the year June 1954-June 1955, and the half-year June-December 1955.

II. *The Influence of Consumer Attitudes, June 1954-June 1955*

The reinterview test of the influence of consumer attitudes on purchases consists of classifying individuals according to attitudes and comparing purchases made by the various attitude groups. Since attitude change occurs rather frequently we shall take account of initial attitudes in June 1954 as well as of attitude change during the following year, the period under study.[9] The index of consumer attitudes is used to distinguish between people who were initially *optimists* (scoring 10-12 on a 12-point attitude scale), *medium* (scoring 7-9), and *pessimists* (scoring 0-6).[10] It is also used to subclassify these groups according to subsequent attitude change—distinguishing between those whose attitudes remained "the same" (*i.e.,* changed by one point or less), "improved" (by two or more points), and "deteriorated" (by two points or more). The following tabulation shows the distribution of attitude scores in June 1954 and June 1955:

Index of Consumer Attitudes

	June 1954 (per cent)	June 1955 (per cent)
Optimistic (10-12)	31	43
Medium (7-9)	44	47
Pessimistic (0-6)	25	10
	—	—
All	100	100
Number of cases	674	674

The method of analysis consists of two stages. In the first stage the income effect is "eliminated." This is necessary because *optimists* tend to have higher incomes than *pessimists*. The average number of

[9] Another study by George Katona dealing specifically with the frequency of attitude change and its determinants will appear in *Psychological Monographs.*

[10] With optimistic replies scored as 2, medium (same, pro-con) replies as 1, and pessimistic replies as 0, a score has been computed for each respondent from his answers to the 6 questions. These scores can range from 0 for extreme pessimism to 12 for extreme optimism. People who repeatedly gave "I don't know" or similar answers have been excluded from this analysis. The remaining expressions of uncertainty were scored 1.

purchases is determined for each of nine income groups. This gives us an "expected" number of purchases for each family based on its current income. We also know from the reinterview the actual number of purchases made by each family. In the second stage the ratio of actual to expected purchases is compared for our various attitude groups, using a simple analysis of variance. For example, the average number of purchases among families with incomes from $4,000-$5,000 was 1.5 in the year under study. A family with an income of $4,500 and one purchase would therefore have a ratio of actual to expected purchases of .67. After adding up actual and expected purchases for all the families within any one attitude group, we compute the ratio of actual to expected purchases. In the tables which follow such ratios are presented for groups with differing attitudes. The method used in this section is in a sense a very rigorous test of the influence of attitudes on purchases, since it gives priority to income in the analysis. It determines, in fact, how much consumer attitudes contribute toward the explanation of purchase decisions over and above the explanation provided by income.

We begin by considering the entire year June 1954-June 1955. Table I illustrates our method step-by-step. All families have been classified according to their initial attitudes in June 1954 and according to attitude change between June 1954 and June 1955. Theoretically 9 attitude classifications are possible. By definition, however, 2 could occur only infrequently: being initially optimistic and improving (14 cases) and being initially pessimistic and deteriorating (5 cases). These cells have therefore been omitted. This leaves a 7-group classification. Part A of Table I shows the average number of purchases per family made between June 1954 and June 1955 by each of these 7 attitude groups. The table shows large differences in purchases between these attitude groups.

Since we know that *optimists* tend to have higher incomes than *pessimists,* Part B of Table I shows the average number of purchases which might be expected on the basis of the income distribution within each of the 7 groups. Clearly the intergroup differences in "expected" purchases are smaller than the differences in actual purchases, although they are in the same direction.

Finally, Part C presents ratios of actual to expected purchases for each of the 7 attitude groups. These ratios are measures of the influence of attitudes on purchases after elimination of the income effect.[11] In every column the *medium* group had lower ratios than the

[11] Eliminating the income effect also serves to eliminate most of the effect of age on purchases. For data on the intercorrelations between income, attitudes, and other variables see Table V in Section III.

TABLE I.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, ATTITUDE CHANGE, AND NUMBER OF PURCHASES, JUNE 1954–JUNE 1955

Initial Attitude June 1954	Attitude Change, June 1954–June 1955			
A. Actual Average Number of Purchases per Family				
	Improved	Same	Deteriorated	All
Optimist		1.91	1.64	1.83 (209)
Medium	1.80	1.48	1.23[a]	1.59 (295)
Pessimist	1.27	.90[a]		1.21 (170)
All[b]	1.52 (269)	1.61 (320)	1.53 (85)	(674)
B. Expected Average Number of Purchases per Family[c]				
	Improved	Same	Deteriorated	All
Optimist		1.75	1.62	1.71
Medium	1.60	1.55	1.47[a]	1.56
Pessimist	1.41	1.37[a]		1.40
All	1.50	1.62	1.58	
C. Ratio of Actual to Expected Purchases[d]				
	Improved	Same	Deteriorated	All
Optimist		1.09	1.01	1.07
Medium	1.13	.96	.84[a]	1.02
Pessimist	.90	.65[a]		.86
All	1.01	.99	.97	

[a] Less than 35 cases.

[b] Numbers in parentheses indicate number of cases in each row and column. These numbers are the same for all three parts of Table I as well as for Table III.

[c] Expected number of purchases is calculated for each cell on the basis of its income distribution; *i.e.*, observed ave. no. of purchases within each of 9 income groups weighted by income distribution prevailing within each of the 7 attitude groups.

[d] The differences in this 7-way classification are significant at the 2½ per cent level. The significance tests in this section consist of F-ratios based on a one-way analysis of variance. Actually, the variable employed in the significance tests was the residual difference, *i.e.*, observed purchases minus expected purchases, rather than the ratio of these. Given over 650 cases, the fact that the sample was clustered has practically no effect on this significance test.

optimists; and the *pessimists* had lower ratios still. Similarly in each row the groups whose attitudes improved made more purchases (relative to what might have been expected on the basis of their incomes) than the group with unchanged attitudes; and that group in turn made more purchases than the group whose attitudes changed for the worse. Thus it appears that both initial attitudes in June 1954 and attitude change during June 1954-June 1955 had an influence on purchases during that period.

Instead of examining the relation of initial attitudes and attitude change to purchases we may consider initial attitudes and final attitudes

TABLE II.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, FINAL ATTITUDES AND NUMBER OF PURCHASES, JUNE 1954–JUNE 1955[a]

(Ratio of actual to expected purchases within each attitude group[b])

Initial Attitude June 1954	Final Attitude, June 1955			
	Optimist	Medium	Pessimist	All
Optimist	1.08	1.09	.74	1.07 (209)
Medium	1.07	.99	.85	1.02 (295)
Pessimist	.92	.88	.73	.86 (170)
All	1.06 (292)	.99 (317)	.78 (65)	(674)

[a] F ratio for this 9-way classification is 1.33. Required for significance at 10 per cent level: 1.67; at 25 per cent level: 1.28.

[b] Figures within cells represent ratio of actual to "expected" number of purchases in the 12 months June 1954–June 1955. "Expected" number of purchases are calculated separately for each cell on the basis of its income distribution. Numbers in parentheses indicate number of cases in each row and column.

in relation to purchases. This second principle of classification is used in Table II, where classification is by index-score brackets at the beginning and end of the year. Particularly interesting in Table II are the pronounced differences between the people who were *optimists* at both dates, *medium* at both dates, and *pessimists* at both dates. On the whole, the results obtained in Tables I and II are similar. The greatest differences appear in the third column of the two tables. The ratio of actual to expected purchases is lower for the *pessimists* than for those whose attitudes deteriorated. The explanation lies in the fact that in a period when optimism prevails, deterioration very often represents a change from *optimist* to *medium,* rather than to *pessimist.* The tables which follow are confined to the attitude-change classification.

We shall now examine the purchase ratios in Table I separately for each half-year period: June-December 1954 and the first half of 1955. Table III shows the relation between actual and expected purchases, in both the first and the second half-year period, for 7 groups classified according to initial attitudes in June 1954 and attitude change during

TABLE III.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, ATTITUDE CHANGE, AND NUMBER OF PURCHASES BY HALF-YEAR PERIODS[a]

Initial Attitude June 1954	Attitude Change, June 1954–June 1955			
A. Ratio of Actual to Expected Purchases within Attitude Groups, Second Half of 1954[b]				
	Improved	Same	Deteriorated	All
Optimist		1.17	1.09	1.15
Medium	1.04	.90	.82[d]	.95
Pessimist	.91	.76[d]		.88
All	.97	1.00	1.01	
B. Ratio of Actual to Expected Purchases within Attitude Groups, First Half of 1955[c]				
	Improved	Same	Deteriorated	All
Optimist		1.00	.89	.97
Medium	1.23	1.04	.85[d]	1.10
Pessimist	.89	.48[d]		.82
All	1.05	.97	.88	

[a] Figures within cells represent ratios of actual to expected number of purchases in each of two half-year periods. Expected number of purchases are calculated separately for each cell on the basis of its income distribution.

[b] Differences in this 7-way classification are significant at 5 per cent level. F-ratio: 2.13 (2.10 at 5 per cent level).

[c] Differences in this 7-way classification are significant only at 10 per cent level. F-ratio: 1.89 (1.77 at 10 per cent level).

[d] Less than 35 cases.

the following 12 months. In general, the influence of initial attitudes as well as of attitude change is clearly evident for both half-years. These two influences in turn will now be examined more closely.

The right-hand columns in Table III (*All*) show the ratio of actual to expected purchases by initial attitude groups, irrespective of later attitude change. In the first half-year (June-December 1954) initial attitudes appear to have a pronounced effect on subsequent purchases.

A variance analysis of these differences shows them to be significant at better than the 2½ per cent level. In the second half-year the group whose attitudes in June 1954 were **medium** had a higher actual/expected purchases ratio than either the *optimists* or the *pessimists;* but the observed differences between the 3 groups were not statistically significant. That is, there was little carry-over of the effect of June 1954 attitudes to purchases beyond December 1954. A further check was made by relating June 1954 attitudes to purchases in the third half-year period (June-December 1955). Again no significant differences emerged.

TABLE IV.—INDEX OF CONSUMER ATTITUDES: ATTITUDE CHANGE, JUNE 1954–JUNE 1955, RELATED TO NUMBER OF PURCHASES IN THE SECOND HALF OF 1954 AND IN THE FIRST HALF OF 1955

	Attitude Change, June 1954–June 1955		
	Improved	Same	Deteriorated
Purchases June 1954–December 1954:			
Actual[a]	.88	.99	.96
Expected[b]	.85	1.00	1.01
Ratio of Actual to Expected[c]	1.04	.99	.95
Purchases December 1954–June 1955:			
Actual[a]	.65	.64	.55
Expected[b]	.59	.67	.63
Ratio of Actual to Expected[d]	1.11	.95	.87
Number of cases	269	320	85

[a] Observed average number of purchases per family.

[b] Expected on the basis of income distribution and initial attitudes within each of 3 attitude change groups.

[c] Differences are not statistically significant.

[d] F-ratio = 1.74. Required for significance at 10 per cent level: 2.30; at 25 per cent level: 1.39.

We may now consider separately the effect of attitude *change* during the year under study. Among the people whose attitudes improved there was a disproportionate number of initial pessimists, and among those whose attitudes deteriorated initial optimism was relatively frequent. The two bottom rows in Table III A and B (*All*) therefore understate the impact of attitude change. To isolate the net effect of attitude change on purchases, initial attitudes must be held constant. Accordingly, in Table IV "expected" purchases is a somewhat different concept than in Tables I-III. The average number of purchases was computed for each income group within the three initial attitude groups. "Expected" purchases in Table IV thus take account of both income and initial attitudes.

Undoubtedly people whose final attitudes differed from their initial attitudes changed at different times during the year. Probably some

changed soon after the initial interview and many more as the year progressed. One therefore would expect a stronger relationship of attitude change to purchases in the second half-year than in the first half-year. The data in Table IV bear this out. For the first half-year the relationships are not sufficiently strong to be statistically significant, although they are in the expected direction. For the second half-year there are at least 3 chances in 4 that the three groups differ with regard to number of purchases.

We may conclude that during the year June 1954-June 1955 consumer attitudes did exert a significant influence on spending decisions. Previous analysis of Survey Research Center data designed to test the influence of consumer attitudes at the individual level considered only initial attitudes and their effect on spending over the following 12 months. It now appears that we should regard the influence of a given set of attitudes as extending primarily over the half-year preceding and the half-year following the measurement. It also appears that the full impact of the state of consumer confidence becomes apparent only when account is taken of attitude change as well as initial attitudes. This must be particularly true if the period under consideration is one of extensive attitude change. The year from June 1954 to June 1955 was characterized by a marked growth in consumer optimism. We find that this change was one of the determinants of consumer spending in that year.

The finding that, at the individual level, attitude change is related to purchases is of particular importance. For in the use of attitudinal data in business-cycle analysis it is assumed that there is a relationship between *changes* in attitudes and *changes* in the rate of spending. At the aggregative level such a relationship has been found to exist previously; at the individual level it has been demonstrated here for the first time.

III. *The Predictive Value of Data on Consumer Attitudes, June 1954-December 1954*

Although we shall now speak of forecasting, this is not forecasting in the aggregative sense. Rather, we wish to determine whether groups of consumers who differ with respect to certain initial variables differ also with respect to later purchases. Some variables which, at the individual level, show a decided impact on spending nevertheless may not be useful for aggregative forecasting. These are the variables whose distribution in the entire population is nearly constant over considerable periods of time, for example, age. In more general terms, the predictive value of a variable for an aggregative forecast depends not

only on the strength of its relation to spending at the individual level (which is analyzed here), but also on its variability over time.

Since we are interested in forecasting, we shall use in the analysis which follows only data which are available at the beginning of the period under study. Thus we use past income and attitudes at the beginning of the period under study, but must ignore subsequent attitude change and income during the year for which the forecast is being made. In view of the findings of the previous section we shall analyze the predictive value of data on consumer attitudes over half-year periods rather than an entire year. Specifically, we shall consider to what extent the index of consumer attitudes and the index of buying intentions, as measured in June 1954, foreshadow purchases in the second half of 1954. In this section we shall use a multiple correlation technique.

When we analyze the relation between attitudes (A) and purchases (P) the "other" variables which should be held constant may be grouped into three categories: first, those which affect A as well as P. Analysis over a period of years indicates that two important variables fall into this category and should be taken into account: income and age. Optimism is more frequent in the higher- than in the lower-income groups. The number of purchases also increases with income, and this relation is by no means due entirely to the greater optimism prevailing among the upper-income groups. Similarly for age—young people are more optimistic than older people; they also make more purchases (partly because of their greater optimism, but also because they must usually equip a newly formed household). A second category of related variables includes those which have been found to affect P but which show no significant relation to A (after account has been taken of income and age): such variables as marital status, number and age of children, education, place of residence, home-ownership status. If the sample is sufficiently large, groups which are homogeneous with respect to income and age but differ in attitudes should have similar distributions of this second type of characteristic. These variables may then be disregarded in our analysis without biasing the relationship between A and P, although some random variations may arise from the presence of small subgroups in the sample.

The third category of related variables includes those which affect or determine attitudes but have no effect on purchases, except via their influence on attitudes, age, or income. Among the determinants of attitudes are a wide variety of stimuli originating in the economic and political environment as well as experiences of a more personal nature. However, the determinants of attitudes also include age and income. Hence, when we relate attitudes, income and age to purchases

in a single equation, we do not know how much of the effect of income and age on purchases is brought about indirectly through their impact on attitudes.[12]

Keeping this problem of interpretation in mind, we now present two regression equations. The first relates income (Y_{-1}), age (X), and the index of consumer attitudes (A) to purchases in the subsequent half-year. In equation (2) the index of buying intentions (B) is added to the independent variables. Purchases are for the period June-December 1954. Attitudes and buying intentions are measured as of June 1954. The income variable represents 1953 income, the current year's income being as yet undetermined and unknown in June. The numbers in parentheses are the standard errors of the coefficients.[13] R is the multiple correlation coefficient.

$$P = .708 + \underset{(.017)}{.060}Y_{-1} - \underset{(.024)}{.066}X + \underset{(.015)}{.031}A \tag{1}$$

$$R = .23$$

$$P = .624 + \underset{(.016)}{.052}Y_{-1} - \underset{(.024)}{.053}X + \underset{(.015)}{.022}A + \underset{(.044)}{.131}B \tag{2}$$

$$R = .25$$

In equation (1) much of the explanation of P comes from income and some comes from age, but attitudes also show a significant relation to purchases. The net effect of adding the index of buying intentions (B) is to raise the multiple correlation coefficient from .23 to .25. Thus, while buying intentions have a highly significant relation to consumer purchases, they are also correlated with our other three independent variables; their introduction therefore reduces the contribution of the other three variables. In particular, the contribution of consumer attitudes now appears to be of less significance. When we examine the intercorrelations between our variables as measured by the simple and partial correlation coefficients (Table V), we find that the simple correlations (zero order) of purchases with income and buying plans are somewhat higher than the correlations of purchases with age and attitudes. Several of the intercorrelations between the independent variables are stronger than the correlations of any one of them with purchases. Particularly strong are the correlations between

[12] Given the following equations, the "pure" relation between P and A is not identifiable:

$$A = f_1\ (Y, X, O)$$
$$P = f_2\ (A, Y, X)$$

where A = attitudes, Y = income, X = age, O = a short-cut expression for other determinants of attitudes, and P = purchases.

[13] The standard errors provide an unsatisfactory test of significance in this case, partly because of the interdependence of the independent variables mentioned above, and also because we are dealing with a clustered sample.

income and attitudes, income and buying plans, and attitudes and buying plans.

The third-order coefficients (Part B of Table V) indicate that the net relationship of income and of buying plans to purchases are of the same order of magnitude. The relations of age and attitudes to purchases are considerably weaker. All four variables appear to make a rather small contribution to the explanation of number of major purchases. However, it should be recalled in evaluating these coefficients that cross-section analysis always yields far lower correlations than time-series studies making use of the same variables. This is due to the

TABLE V.—INTERRELATIONSHIPS BETWEEN PURCHASES, INCOME, AGE, ATTITUDES AND BUYING PLANS

A. Zero Order Correlation Coefficients:

	R_{12}	R_{13}	R_{14}[a]	R_{15}	R_{23}	R_{24}	R_{25}	R_{34}	R_{35}	R_{45}
2nd Half—1954	.18	−.13	.14	.19	−.08	.31	.25	−.12	−.22	.28

B. 3rd Order Correlation Coefficients:

	$R_{12.345}$	$R_{13.245}$	$R_{14.235}$	$R_{15.234}$
2nd Half—1954	.12	−.08	.06	.11

C. Multiple Correlation Coefficients:

	$R_{1.23}$	$R_{1.45}$	$R_{1.2345}$
2nd Half—1954	.21	.21	.25

1 = Purchases (P)
2 = Income (Y_{-1})
3 = Age (X)
4 = Index of consumer attitudes (A)
5 = Buying plans (B)

[a] The 1st order correlation coefficient for the same two variables, holding income alone constant ($R_{14.2}$), is .082. The second order coefficient, holding income and age constant ($R_{14.23}$), is .077. Therefore in Part II of this paper it was deemed sufficient to hold income constant.

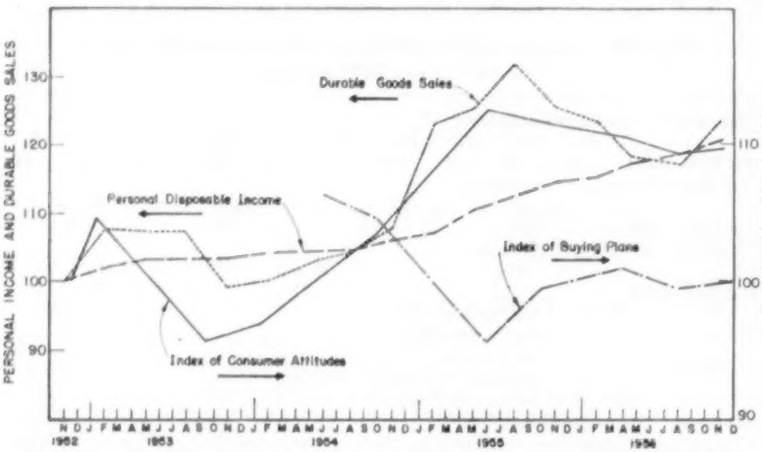
multiplicity of factors which affect individual behavior (most of which are averaged out in the aggregate). For the period considered here, in our sample of about 675 families, the simple correlation between income and number of purchases was only .18 (while time-series correlations between disposable income and consumer spending have yielded correlation coefficients in excess of .90).

Part C of Table V compares the joint explanatory value, at the individual level, of income and age with the joint explanatory value of attitudes and buying plans. It appears that about equally accurate forecasts can be obtained from either of the pairs of variables (disregarding the other pair). This conclusion applies only to cross-section forecasting. When we draw inferences about forecasting at the aggregative level, the cyclical behavior of our variables must be taken into account. Of course, the distribution of age of family heads is not sub-

ject to short-run cyclical changes at all. The cross-section income variable reflects primarily people's position on the income scale, while aggregate income reflects changes in the level of income and does vary cyclically.

The cyclical movements of our variables are illustrated for the years 1952-56 in Chart I. The Chart shows that the index of consumer attitudes exhibits pronounced cyclical fluctuations. Two of the compo-

CHART I. TREND OF DURABLE GOODS SALES, PERSONAL INCOME, CONSUMER ATTITUDES AND BUYING PLANS, 1952-56



Sources: Durable Goods Sales and Personal Disposable Income series are U. S. Dept. of Commerce quarterly data, seasonally adjusted, last quarter 1952 = 100. The Index of Consumer Attitudes and the Index of Buying Plans are Survey Research Center data; see Katona and Mueller, *Consumer Expectations, 1953-56* and, for the most recent data, Foundation for Research on Human Behavior, *Prospects for 1957: Consumer Expectations and Business Capital Appropriations* (Ann Arbor, Mich., 1957). The Index of Consumer Attitudes and the Index of Buying Plans are not adjusted for seasonal variation. For Index of Consumer Attitudes Nov.-Dec. 1952 = 100. Since the Index of Buying Plans is not available for 1952, the last survey, Nov. 1956 = 100. It should be noted that the Buying Plans Index is plotted as of the survey date, although it should be related to future rather than current purchases.

nents of the buying plans index (plans to buy houses and cars) are available prior to June 1954; they register a sharp upturn between early 1954 and June 1954. The drop in buying plans between late 1954 and mid-1955 may have been reinforced by seasonal factors, but buying plans remained below peak levels throughout 1956. Personal disposable income shows cyclical variations in the rate of growth.

A further consideration in evaluating the usefulness of attitudinal data for forecasting is sensitivity to incipient changes in the environ-

ment. The correlation between the index of consumer attitudes in June and income of the current calendar year is higher than the correlation between June attitudes and income of the previous calendar year. When, in retrospect, we use current income[14] (instead of the previous year's income) in our regressions, the multiple correlation coefficients are hardly raised at all. However, when current income is held constant, the relation between attitudes and purchases is weakened somewhat more than it is weakened when the previous year's income is held constant. While this matter is beyond the scope of the present article, it does suggest that attitudinal measures may be advance indicators of income changes which are in the making.[15]

IV. *The Role of Consumer Attitudes, June-December 1955*

For purposes of this analysis, the second half of 1955 offers an interesting contrast to the second half of 1954. In the fall of 1954 the economy was in the process of recovering from a mild recession. By the second half of 1955, the third half-year of our study, the economic climate had improved greatly. According to Department of Commerce data, disposable personal income in the second half of 1954 was 2 per cent above a year earlier. In 1955 it rose sharply, and in the second half of that year it was 8 per cent above a year earlier. Consumer attitudes as well as intentions to buy cars and houses, on the other hand, already showed substantial improvement in June 1954, and attitudes reflected even greater optimism by the end of that year. In the second half of 1955 attitudes showed stability at a very high level. Thus it appears likely that in 1954 a strong impetus to spending came from the growth in optimism; while in 1955 increases in income provided the major stimulus to spending.[16]

This inference, derived from aggregative comparisons, is borne out but the reinterview test. Table VI relates purchases in the second half of 1955 to attitudes in June 1955. No difference appears in the ratio of actual to expected purchases between the *optimist* and the *medium* groups. The *pessimists* show a somewhat lower ratio, but this group had shrunk to 10 per cent of the sample by June 1955. The differences in Table VI are not statistically significant.

[14] Current income here means income of the entire calendar year in progress. The forecast is being made in June for the second half of that year.

[15] See also T. F. Juster, "Expectational Data and Short Term Forecasting: An Analysis of the Saving-Income Ratio, with Special Reference to the Demand for Consumer Durable Goods" (unpublished Ph.D. thesis, Columbia University, New York, 1957).

[16] An additional important stimulus to spending in 1955, particularly on automobiles, came from the lengthening of instalment credit maturities according to a study by the Board of Governors of the Federal Reserve System, *Consumer Instalment Credit,* Vols. I-VI (Washington, 1957), Pt. IV, pp. 1-7, 58-79.

For the second half of 1955 our data are less complete than for the previous year. Therefore we shall here relate purchases in the second half of 1955 only to initial index scores in June 1955, and not to attitude change during the period. However, for some index components initial as well as final measurements are available.

When we look at the components of the index, we discover that favorable expectations regarding business conditions—both long-term and short-term—and favorable evaluations of buying conditions in June 1955 were positively related to number of purchases. The lack of

TABLE VI.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, JUNE 1955, RELATED TO NUMBER OF PURCHASES IN JUNE–DECEMBER 1955

	Average Number of Purchases per Family by Consumers Who in June 1955 Were:		
	Optimistic	Medium	Pessimistic
Actual Purchases[a]	1.10	1.00	.77
Expected Purchases[b]	1.09	.99	.84
Ratio of Actual to Expected[c]	1.01	1.01	.92
Number of Cases	292	317	65

[a] Observed average.
[b] Expected on the basis of income distribution within each of the 3 attitude groups.
[c] Differences are not statistically significant.

correspondence between initial attitudes in June 1955 and subsequent purchases is found primarily in the area of personal financial attitudes. Whereas people's evaluations of recent changes in their financial position contributed substantially toward the relationship between the index and subsequent purchases in June 1954, they did not have the expected effect in the second half of 1955. People who felt worse off in June 1955 had a much higher ratio of actual to expected purchases in the following half-year than those who were *medium*, and even a somewhat higher ratio than those who were better off. This result may be explained by the pattern of attitude change during the period. Of the people who felt "worse off" in June 1955, 20 per cent felt "better off" half a year later, while only 4 per cent of those who initially felt "better off" changed to "worse off." People who initially were pessimistic and became optimistic were particularly active buyers. Their ratio of actual to expected purchases was 1.41, compared with 1.07 for people who were better off at both dates. Having perhaps held back for a time, their improved evaluation of their financial situation led this group to buy more than the people who had been optimistic all along.

A further test of the relation between attitudes and spending in the

second half of 1955 is provided by our regression equations. Equations (3) and (4) correspond to equations (1) and (2) in Section III above, except that they apply to the second half of 1955 rather than the second half of 1954. Equation (3) excludes and equation (4) includes buying intentions among the explanatory variables.

$$P = .758 + \underset{(.017)}{.085}Y_{-1} - \underset{(.025)}{.063}X + \underset{(.018)}{.015}A \tag{3}$$

$$R = .25$$

$$P = .655 + \underset{(.018)}{.073}Y_{-1} - \underset{(.026)}{.050}X + \underset{(.019)}{.011}A + \underset{(.048)}{.157}B \tag{4}$$

$$R = .28$$

In both equations the coefficient of A is smaller than its standard error. Thus it appears again that attitudes alone had no significant effect on purchases in the second half of 1955. The index of buying intentions, however, once again proved to be a very significant predictor of consumer spending.[17]

The intercorrelations between our variables and the partial correlation coefficients also differ in some respects from those obtained for the second half of 1954: they indicate that income was a more important determinant of consumer spending during this second period. The simple correlations between purchases and income is .23 for June-December 1955, compared with .18 in the earlier period. The net correlation between purchases and income (*i.e.*, the third order coefficient) holding the other three variables constant, also is higher. The net correlation between purchases and attitudes on the other hand is lower, being a mere .02. The joint correlation of income and age with purchases (disregarding attitudes and buying intentions) is .25 as compared with .21 for the second half of 1954. The joint correlation of attitudes and buying plans with purchases (disregarding income and age) is .21, the same as in the second half of 1954.

Essentially then, we find that consumer attitudes, by themselves, make only a very small contribution toward the explanation of consumer purchases in the second half of 1955. Undoubtedly, the difference in the influence of consumer attitudes during the two periods studied reflects in large part the varying growth-rate of income. If we define "autonomous" variations in consumer spending as variations which are unrelated to changes in income, it is clear that autonomous variations may, but need not always, occur. In the second half of 1955, in contrast to the second half of 1954, consumer spending appears to have been largely nonautonomous.

[17] This is true despite the fact that buying intentions here are measured as of December 1954. They are not available for June 1955.

In addition, we may point to certain limitations of the attitude measurements which may affect our results for 1955. Differences in opinions and attitudes were much greater in mid-1954 than in mid-1955. With regard to almost all attitudes in the index, the group of pessimists had shrunk considerably between mid-1954 and mid-1955. Using the index as a yardstick, the proportion of pessimists in the sample declined from one-fourth in mid-1954 to one-tenth in mid-1955. This fact of itself makes it difficult to get reliable differences between optimists and pessimists. But beyond that, it raises questions about the character of the pessimistic group. For example, the 8 per cent of consumers who in the midst of a period of great prosperity saw "bad times" ahead may consist in large part of the hard core of chronically pessimistic and disgruntled individuals. These people may differ considerably in their behavior from the larger group who are pessimistic at a time when unfavorable developments are thought to be imminent, but who are optimistic at other times. Similarly, the reservations which people expressed either about business conditions or about their financial situation (putting them into the *medium* group) may have been less serious in mid-1955 than in mid-1954. Our attitudinal measures are not yet sufficiently sensitive to register the qualitative differences which may occur from time to time in what appears to be the same answer.

Given our present measurements, interpersonal comparisons are likely to be most successful when marked differences in attitudes and opinions exist. They are least likely to be successful when, as in the second half of 1955, (a) a considerable unanimity of opinions and attitudes has been attained, and (b) no substantial changes have occurred in the economic environment to disturb this unanimity. At such times deviations from the prevailing state of sentiment may reflect to a large extent personality factors, temporary personal experiences, and unreliability of the data. Nevertheless, in the aggregate attitudinal measurements are of value, even during such periods. For we need to know whether or not the prevailing state of confidence and satisfaction has been altered or is continuing.

V. *Conclusions*

Under certain conditions attitudinal variables do contribute significantly toward an explanation of fluctuations in consumer spending, while under others they do not exhibit an independent effect. The next goal is to learn more about the conditions under which attitudes do, or do not, help to explain variations in consumer purchases.

Our study suggests that information on consumer attitudes is most valuable at times when there is a marked divergence between changes

in income and changes in attitudes such as occurred in mid-1951 or in the second half of 1954. The divergence may be due to people's reactions to economic news, about price changes, tax changes, employment opportunities, sales trends, recession or recovery prospects; or it may be due to political developments such as the outcome of an election or international disturbances. There are other periods when there is very little divergence between income and attitude trends: both are high or low relative to previous levels. The second half of 1955 is a case in point. In this second case attitudes may also be influential. However, financial and demographic factors play a greater role as determinants of attitudes at such times. Therefore attitudinal data seem to add little to the explanation of consumer behavior provided by such variables as income and age. Additional studies conducted under varying economic conditions are needed to further substantiate this hypothesis.

The index of consumer attitudes which was related here to individual purchases is still in an experimental stage. Ahead is the challenging problem of seeing whether closer correlations with purchases can be established by improving the index—by adding new series, revising the weighting of components, and refining the attitudinal measures themselves.

CONSUMER INSTALMENT CREDIT

A Review Article

By WARREN L. SMITH*

This important study,[1] prepared under the direction of the Board of Governors of the Federal Reserve System at the request of the chairman of the Council of Economic Advisers, presents an elaborate factual and analytical picture of consumer instalment credit and its role in the American economy. At the time of the Council's request to the Board (early 1956), there was much concern over the rapid growth of consumer credit, and the President had just suggested to the Congress in his Economic Report that it might be desirable to re-establish, at least on a stand-by basis, selective controls over consumer credit. Accordingly, the Council requested the Board to "appraise the arguments for and against" selective controls; and much of the material presented in the study is designed to provide a basis for such an appraisal.[2]

Part I contains studies by the research staff of the Federal Reserve System—the first volume presenting a systematic survey, and the second containing specialized technical and background materials. Part II is the product of a conference of specialists held under the auspices of the National Bureau of Economic Research. Part III contains a digest of the views of the consumer credit industry and other interested parties concerning regulation. Part IV presents the findings of a sample survey of purchasers of new automobiles during 1954 and 1955.

Since these volumes represent a number of separate studies carried out by numerous scholars and research teams, it is not surprising that there is considerable duplication. My procedure will be to select what seem to be the most important issues and to summarize and evaluate the materials contained in the entire study bearing on each of them. I shall first take up the effects of consumer instalment credit on economic growth and stability; second, the responsiveness of consumer credit, and expenditures financed thereby, to general credit controls; and third, the question of selective controls.

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[1] Board of Governors of the Federal Reserve System, *Consumer Instalment Credit*, 6 vols. (Washington, 1957.) Part I, *Growth and Import*, 2 vols. Pp. ix, 388, $1.25; 287, $1.00. Part II, *Conference on Regulation*, 2 vols. Pp. xxvi, 553, $1.75; x, 161, 60¢. Part III, *Views on Regulation*. Pp. vii, 230, $1.00. Part IV, *Financing New Car Purchases: A National Survey for 1954-55*. Pp. xii, 166, 67, 60¢.

[2] The study does not take a position for or against selective controls. However, subsequent to its publication and based upon its contents, the Board of Governors transmitted a statement to the interested Congressional committees and to the Council of Economic Advisers expressing opposition to selective controls at the present time. See *Fed. Res. Bull.*, June 1957, XLIII, 647-48.

I. *Effects of Consumer Instalment Credit on Economic Growth and Stability*

A. *Growth.* Expenditures on consumer durable goods averaged about 7 per cent of disposable income in the first decade of the twentieth century, had risen to about 10 per cent during the nineteen-twenties, and averaged roughly 11 per cent during the decade 1946-55. The fraction of national wealth represented by the stock of consumer durable goods has increased correspondingly. Consumer credit has shown more rapid growth than durable-goods expenditures. The annual rate of growth in outstanding consumer instalment credit has averaged about 10 per cent since 1920, and growth has occurred in three waves: (a) from 1920-29, followed by a decline in the depression years of the early 1930's; (b) during the middle and later 1930's, followed by a decline during the second world war; and (c) during the period since the war. From 1946 to 1955, the annual rate of growth averaged 27.5 per cent.[3]

The growth of instalment credit can be attributed to a number of causes, including the growth of specialized consumer financing machinery, the promotion of credit sales by lenders and dealers in consumer durable goods, changing attitudes toward consumer debt,[4] extension of credit facilities to cover a progressively wider range of goods and services, and a persistent tendency, going back many years, toward easier credit terms.[5]

Has the development and expansion of consumer instalment credit served to promote a more rapid secular rate of economic growth? Ervin Miller argues that it has.[6] He contends that purchases of consumer durable goods should be treated as a form of investment and included in personal saving. On this basis, he argues that the introduction and extension of consumer instalment credit has probably increased the rate of capital accumulation, since the increased growth of consumer capital in the form of durable goods has probably not been fully offset by a reduction in other forms of personal saving and business capital accumulation. In addition, he suggests (following Ruth Mack) that the existence of attractive durable goods may have led to greater work effort, especially in the form of greater participation of women in the labor force.[7] And, finally, consumer credit has promoted growth by increasing the relative importance of industries producing consumer durable goods, because these lend themselves especially well to mass production methods and have therefore shown rapid increases in productivity.

[3] Detailed data on the growth of consumer instalment credit are to be found in Part I, Vol. I, Ch. 8, and Part II, Vol. I, pp. 169-234.

[4] See Part I, Vol. I, pp. 105-07; also G. Katona, "Attitudes toward Saving and Borrowing," Part II, Vol. I, pp. 450-85.

[5] See Part I, Vol. I, pp. 24-34; G. H. Moore, T. R. Atkinson, and P. A. Klein, "Changes in the Quality of Consumer Instalment Credit," Part II, Vol. I, pp. 115-25, 133-34. The effects of changing credit terms on the volume of outstanding debt are discussed in Part I, Vol. I, Ch. 7.

[6] E. Miller, "Consumer Credit and Economic Growth," Part II, Vol. I, pp. 169-234.

[7] The increased participation of women in the labor force may, in part, be made possible by the reduction of household work loads brought about by the use of household appliances. In addition, the automobile, by increasing the mobility of labor, may have somewhat reduced the level of frictional unemployment and also promoted a more efficient utilization of the labor force. See Part I, Vol. I, pp. 184-87.

In his comments on Miller's paper,[8] Moses Abramovitz suggests that the growth of consumer capital, due in good part to the development of improved techniques of consumer finance, has not only contributed to economic growth along the lines outlined by Miller, but has also produced profound and significant changes in our national life by reviving interest in property ownership and making it more widespread. He suggests that "these developments [may] have contributed to a revitalization of the bourgeois attitudes toward family, home, and estate, the weakening of which Schumpeter feared was sapping the piers of capitalism."[9]

F. A. Lutz,[10] who also discusses Miller's paper, contends that consumer credit has, on the whole, tended to reduce the rate of growth. His argument is based on the presumption that consumer durable goods are, in some sense, "less productive" than producer capital goods. In consequence, Lutz expresses a preference for concepts of saving and investment that do not include consumer durable goods. He demonstrates the likelihood that if consumer durables are not treated as capital, the development and extension of consumer instalment credit has reduced the rate of capital accumulation and depressed the rate of growth.[11]

I believe Miller and Abramovitz have the better of the argument. It is difficult to give clear meaning to the statement that producer capital is "more productive" than consumer capital. Fundamentally, productivity consists in the ability to satisfy consumer wants. In this sense consumer credit apparently rates high, since consumers pay, in general, a much higher price for their credit than producers do for theirs.[12] It would seem that for the purpose of studying economic welfare, purchases of consumer durable goods should be treated as part of saving and investment and that the imputed flow of current services from the existing stock of consumer durable goods should be included in the national income.[13]

[8] M. Abramovitz, "Comment," Part II, Vol. I, pp. 246-53.

[9] *Ibid.*, p. 252.

[10] F. A. Lutz, "Comment," Part II, Vol. I, pp. 234-45.

[11] *Ibid.*, pp. 236-41. This conclusion is qualified somewhat: see p. 241.

[12] On the cost of instalment credit to the consumer, see Part I, Vol. I, pp. 49-61. One could argue that the cost of credit to consumers exceeds its cost to business by more than the additional costs and risks to the lender would justify—that the consumer is treated discriminatorily in the credit markets. Thus, a case could be made for regulation designed to assure equality of treatment. (This point is made by Abramovitz, *op. cit.*, p. 253.) Such regulation might increase welfare by promoting a more efficient allocation of total capital between consumer and producer capital. And, significantly, it should result in some *expansion* of consumer capital at the expense of producer capital.

[13] That is, durable goods should be treated in the national accounts in the same way as houses are now handled. It would, however, be more difficult for durable goods to be treated this way than it is for houses, since market rentals in the case of the former are usually not available to serve as a basis for valuing the flow of services. On the other hand, when the accounts are used in the analysis of short-run employment problems or for the study of economic growth when the emphasis is on maintaining a balance between capacity and demand, it is better to exclude imputed elements of income and to focus attention on expenditures—i.e., to treat consumer durable goods expenditures as consumption rather than investment. No employment is generated currently by imputed

The development and extension of consumer instalment credit has probably increased the rate of growth and had quite profound effects upon economic development. This is not, however, a particularly helpful conclusion, since it is virtually impossible even to venture an intelligent guess as to the magnitude of these effects. As far as the question of selective controls is concerned, our rather meager knowledge of the growth effects provides us with little basis for either favoring or opposing such controls.

B. *Stability*.[14] The cyclical effects of consumer instalment credit and the related expenditures on consumer durable goods have been the subject of considerable discussion by economists in the past.[15] The facts seem to indicate that consumer credit has contributed to most of the fluctuations in economic activity that have occurred since 1929.[16] In the early postwar years, however, markets for consumer durable goods seem to have been dominated by special factors, including wartime shortages and the resulting need for replacement, the initially low level of consumer debt, large holdings of liquid assets, the rising supplies of durable goods during the reconversion period, and the temporary applications of selective controls from September 1948 to June 1949 and from September 1950 to May 1952. As a result, instalment credit and durable-goods expenditures did not bear their usual relation to income; for example, during the 1949 recession, both durable-goods expenditures and the net change in instalment credit outstanding continued to increase. Thus, instalment credit appears to have had a stabilizing effect during most of this period.[17] Since 1952, the procyclical behavior of earlier years has been resumed. Consumer credit appears to have been a significant factor in the 1953-54 recession, as well as in the expansion beginning in mid-1954.[18]

Fundamental to an explanation of the cyclical role of consumer credit appears to be the fact that such credit is largely used to finance the purchase of durable goods.[19] An explanation of cyclical fluctuations in durable-goods buying can be developed in terms of the acceleration principle. If the demand for the services of durable goods is a function of the level of income, there will be

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elements of income, and the causal relations that may exist between income and expenditures are likely to be obscured rather than sharpened by their inclusion. Moreover, the increments to capacity associated with the growth of the stock of consumer durable goods are not such as to raise important questions of utilization.

[14] This section of the review is based largely upon the following portions of the study: Part I, Vol. I, Ch. 11; D. D. Humphrey, "Instalment Credit and Business Cycles," Part II, Vol. I, pp. 3-55; V. L. Bassie, "Comment" (on Humphrey's paper), *ibid.*, pp. 56-69.

[15] A summary of earlier studies of the relation of consumer instalment credit to economic stability is given in Part I, Vol. I, Ch. 12.

[16] Part I, Vol. I, pp. 210-12.

[17] *Ibid.*, pp. 212-14; Humphrey, *op. cit.*, pp. 29-32.

[18] Humphrey, *op. cit.*, pp. 32-34.

[19] Of the total of $29.0 billion of instalment credit outstanding at the end of 1955, 46 per cent was incurred for the purchase of automobiles (new and used), 26 per cent for the purchase of other durable goods, 6 per cent were repair and modernization loans, and the remaining 22 per cent were personal loans. Part I, Vol. I, Table 3, p. 26. The most important single use of funds obtained through personal instalment loans (from consumer finance companies) is the consolidation of overdue bills. Part I, Vol. I, Table 7, p. 33.

an equilibrium stock of consumer durable goods corresponding to each income level. The demand for net additions to the stock will be a function not of the level but of the rate of change of income.[20] Combined with various other relationships, such a consumer durable-goods accelerator is capable of contributing to (or even causing) cyclical fluctuations in economic activity.[21] It seems probable that such a relationship (in a complex nonlinear form) does in fact exist and constitutes the basic explanation of the instability that characterizes the consumer durable-goods industries. The destabilizing effect of the accelerator is undoubtedly intensified in the downward direction by the fact that replacement can be postponed beyond the normal time[22] and in the upward direction by the availability of consumer credit which permits rapid expansion of purchases to make up for the postponement of replacement during the downswing.

How does consumer credit further serve to intensify instability in the demand for consumer durable goods and in aggregate demand generally? Several strands of explanation are suggested in the study.

1. The development of a specialized and efficient system of consumer credit and the strong promotion of its use have undoubtedly increased, in a general way, the demand for consumer durable goods, thus enlarging the sector to which the acceleration effect is applicable.[23]

2. To the extent that lenders to consumers tend to ease credit conditions during upswings and tighten them during downswings because of changes in their attitude toward the risks of consumer loans, the amplitude of the swings would be increased.[24] This effect seems to be asymmetrical—*i.e.*, the tendency to ease credit terms during booms is much stronger than the tendency to tighten credit terms during recessions. The recent substantial lengthening of maturities and reduction in down-payments on instalment loans (especially new automobile loans) during 1955 and 1956 clearly served to increase expenditures.[25]

[20] Humphrey, *op. cit.*, pp. 11-13; Bassie, *op. cit.*, pp. 58-61.

[21] It is interesting to note that the combination of such an accelerator with an explanation of investment by industries producing consumer durable goods based also on the acceleration principle would introduce an intensified cyclical tendency into the economy. Income would have to increase at an increasing rate in order to justify any net new investment at all in the consumer durable-goods industries.

[22] Bassie, *op. cit.*, p. 57.

[23] Part I, Vol. I, pp. 218, 223.

[24] *Loc. cit.*; see also Moore, Atkinson, and Klein, *op. cit.*, pp. 71, 125-27, where some specific signs of procyclical swings in credit terms are indicated.

[25] It is estimated that the median maturity of new automobile loans increased from about 24 months in 1954 to about 30 months in 1955 and that the median down-payment fell from about one-third to about one-fourth during the same period. (See Part IV, Table IV-1, p. 92; also Part I, Vol. II, Suppl. III.) An increasing tendency to overvalue cars traded in has reduced the effective down-payment. (See Part IV, pp. 15-19.) Incidentally, it is suggested in the study that a further substantial relaxation of credit terms appears somewhat unlikely for two reasons: (a) The effect of successive increases in loan maturity in reducing the monthly payment and thus expanding the market is subject to diminishing returns, partly due to the resulting increase in finance charges. (See Part I, Vol. I, pp. 135-36, 349-50.) (b) Terms on new automobiles have already been eased to the point where, in many cases, the outstanding debt exceeds the resale value of the car at the time of purchase and for some time thereafter, thus exposing the lender to substantial risk. (See

3. The attitudes of consumer borrowers toward incurring debt to buy durable goods (as distinct from their attitude toward the goods themselves) may shift in a destabilizing fashion during the business cycle.[26]

4. The existence of consumer-credit facilities may shift the pattern of consumer saving in such a way as to intensify fluctuations. In the absence of consumer credit (or its less ready availability), consumers would have to save in advance to buy durable goods, while consumer credit permits them (except to the extent of the down-payment) to buy first and save later. Since buying tends to expand during the upswing, this probably serves, to an unknown extent, to shift consumer saving from the upswing to the downswing.[27]

5. Required repayment of outstanding debt may constitute a severe drag on the shrinking total of consumer purchasing power during a period of declining activity. That this can be a heavy burden is attested by the fact that payments on instalment debt in 1955 were $33.7 billion or 12.7 per cent of disposable income.[28] To the extent that repayments cause reductions in current expenditures, there is little reason to expect this effect to be especially concentrated on durable goods. That is, the depressive effects of repayments are likely to be more generalized than the stimulative effects of credit extensions.[29] Of course, repayments may not cause a fully equivalent contraction in spending. Current saving may be reduced below what it would be in the absence of the need to repay, or past accumulations of assets may be liquidated to obtain the necessary funds.[30]

Moore, Atkinson, and Klein, *op. cit.*, pp. 133-34, and T. A. Andersen, "Market Practices in the Consumer Lending Industry," Part II, Vol. I, pp. 429-30.)

[26] Part I, Vol. I, p. 218; see also Katona, *op. cit.*, for evidence that optimistic income expectations are associated with increased consumer borrowing to purchase durable goods.

[27] Part I, Vol. I, pp. 230-31.

[28] The figures exaggerate somewhat the repayment burden during a period of declining income, since a substantial part of the payments were based on debt incurred during 1955. Debt incurred during the current year would presumably fall during a slump. A comparison of payments on instalment debt with other fixed commitments of consumers is shown in Part I, Vol. I, Table 47, p. 196. This shows that the burden of instalment-debt repayment is larger than that of mortgage debt, rent, and life insurance and annuity premiums put together. Although total outstanding mortgage debt on 1- to 4-family houses was more than three times total consumer instalment debt at the end of 1956, the repayment burden of mortgage debt is smaller due to its longer average maturity. (See Humphrey, *op. cit.*, pp. 7-8.) On the other hand, the drag of instalment debt repayments will be eliminated quite rapidly as the debt is paid off, while the drag of mortgage debt will continue virtually undiminished for a relatively long time. See the discussion in Part I, Vol. I, pp. 194-99.

[29] Actually, of course, credit extensions may have effects on expenditures for nondurable goods and services. For example, if credit were not available to a consumer to buy a television set, he might buy the set anyway and curtail his spending on nondurable items. Nevertheless, it seems likely that the effects are fairly concentrated on durable goods.

[30] Apparently a considerable number of households that have instalment debt outstanding also possess liquid assets. See Part I, Vol. I, pp. 92-93, 232; Part II, Vol. I, Table 2, p. 493. On the relation between instalment debt and liquid assets, see J. Tobin, "Consumer Debt and Spending; Some Evidence from Analysis of a Survey," Part II, Vol. I, pp. 532-36. Liquidation of marketable or other securities to obtain funds to repay debt during a recession would, in one way or another, tend to depress security prices, but of course any effects of this kind could presumably be offset by the monetary authorities.

6. If consumers are overburdened with debt at a time when income falls sharply and are in consequence forced to default, the solvency of financial institutions may be imperiled with disastrous effects on the economy. Commercial banks have moved more and more deeply into the consumer-credit field in recent years. They now supply directly or indirectly (via loans to other consumer lenders) about half of the total credit made available to consumers.[31] And consumer loans have become an increasingly large fraction of their assets—representing about 14 per cent of total loans and discounts of all insured banks on December 31, 1955.[32] Thus the commercial banking system has become more vulnerable to declines in the quality and the resulting losses on consumer loans. However, delinquencies, repossessions, and losses on consumer loans have been surprisingly low, even during the 1930's when incomes were falling.[33]

A consideration of the various effects of consumer credit on stability leads to the conclusion that it may for various reasons be a significant factor in the cumulative propulsion of the economy in one direction or the other but that it is not likely to be a major factor in producing turning points. Of course, a consumer durable-goods accelerator, if it is operative, may help to explain turning points, and consumer credit may, by increasing the size of the accelerator or the scope of the sector to which it is applicable, contribute something.

Humphrey in his interesting paper emphasizes the net change in outstanding credit as the best measure of the impact of consumer credit, since it represents the net supplemental purchasing power (sometimes positive, sometimes negative) provided by the consumer-credit machinery. I suspect that this approach exaggerates the effects of consumer credit, perhaps substantially. If E stands for credit extensions, R for repayments, N for the net change in outstanding credit, and C for the change in consumer expenditures caused by consumer credit, we have

$$N = E - R$$

and

$$C = \alpha E - \beta R,$$

where α is the per cent of credit-financed expenditures that would not have been made if credit had not been available and β is the per cent of repayments that is made at the expense of other current expenditures. One might expect that α would be smaller in a boom, when high incomes may permit cash payments in many cases if credit is not available, than in a slump when financial resources are more limited. On the other hand, β may well be larger in a boom than in a slump. Under these conditions, when E rises relative to R, as normally occurs during a boom, the fall in α and rise in β would mean that C

[31] Part I, Vol. II, Table 2, p. 53.

[32] Part I, Vol. I, p. 37.

[33] See Part I, Vol. I, pp. 72-84, and Moore, Atkinson, and Klein, *op. cit.* The latter paper develops some evidence of a deterioration of consumer credit since 1950, due apparently to the reduction of downpayment requirements and the extension of maturities (p. 143). How serious this might prove to be in the event of a decline in business activity is difficult to judge.

would rise less than N. In a slump when E falls relative to R, the rise in α and fall in β would cause C to fall less than N. Although α and β may not behave in the way suggested (and it would be extremely difficult to find out whether they do or not), it is quite clear that the use of the net credit change as a measure of the impact of consumer credit (*i.e.*, the assumption that $\alpha = \beta = 1$—or 100 per cent—under all conditions) is not justified. Hence, one may doubt Humphrey's contention[34] that the automatic destabilizing effects of consumer credit are often more serious than changes in inventory investment and may be more than sufficient to counterbalance the automatic stabilizing effects of changes in the personal income tax.[35]

We may conclude that consumer instalment credit is a factor in producing instability in the economy. However, it is by no means clear that the destabilizing effects of such credit are so powerful or of such great strategic importance that it should, on this ground alone, be specially singled out for control.

II. *The Responsiveness of Consumer Instalment Credit to General Credit Controls*

The question of the sensitivity of consumer spending financed by instalment credit to general credit controls is important, both in judging the possible need for selective controls and for understanding the way in which general credit controls exert their effects on the economy. The study contains contributions bearing on this question by a Federal Reserve research team and by individual scholars.[36]

The analysis of the effects of general credit controls on credit-financed consumer spending is concerned with the effects of these controls on the cost and availability of funds to the major consumer lenders, the changes these lenders are thus induced to make in their terms of lending, and the resulting reactions of consumer borrowers. The material presented in the study relates mainly to commercial banks and sales finance companies, which are the most inportant lenders, and we shall consider these two groups of institutions in turn.[37]

[34] Humphrey, *op. cit.*, pp. 6, 37-42.

[35] A little experimentation with the data for net credit changes for the years 1953, 1954, and 1955, indicates that quite small systematic changes in α and β of the sort indicated above can alter drastically the estimates of the impact of consumer credit on expenditures.

[36] The results of the Federal Reserve study are presented in Part I, Vol. I, Ch. 13. Further details of this study are provided in Part I, Vol. II, Suppl. II, pp. 43-140. See also E. Shapiro and D. Meiselman, "The Financing of Consumer Credit Institutions"; D. P. Jacobs, "Sources and Costs of Funds of Large Sales Finance Companies"; and J. S. Earley, "Comment" (on the Shapiro-Meiselman and Jacobs papers), Part II, Vol. I, pp. 298-323, 324-413, and 414-23, respectively.

[37] At the end of 1956, of the $31.6 billion of outstanding consumer instalment credit, 37 per cent was held by commercial banks, 29 per cent by sales finance companies, 20 per cent by other financial institutions, and 14 per cent by retail outlets. (*Fed. Res. Bull.*, Apr. 1957, XLIII, 452.) Commercial banks are an important source of funds to other consumer lenders, and it is estimated that they have been supplying, directly and indirectly, more than half of the credit made available to consumers. (Part I, Vol. II, p. 53.) The study

A. *Commercial Banks*. Banks extend consumer credit by making direct loans to consumers and by the purchase of paper from retail establishments, particularly automobile dealers. Consumer instalment credit is an exceptionally profitable outlet for bank funds. Interest rates are much higher than on most of the other types of loans that banks make.[38] The costs associated with the extension of consumer credit are undoubtedly also high, but even after allowance for these costs the returns are very attractive.[39] And the risks of loss do not appear very great, in view of the relatively favorable delinquency and loss experience with consumer loans, even during the depression years of the 1930's.

Presumably monetary policy exerts its influence on the volume of consumer loans made by the banking system in a way generally similar to the way in which it affects the cost and availability of other forms of bank credit. When the supply of bank credit is restricted by Federal Reserve action, interest rates may be raised and standards of acceptability made more rigorous for consumer loans, as for other types. Such action may take the form of reducing the allotment of funds to the consumer credit department of the bank (most banks now have such departments) and the establishment of a ceiling on the amount of consumer loans to be admitted to the bank's portfolio. In order to enforce such limitations, the consumer credit department may raise interest rates charged, set more restrictive standard terms (down-payments and maturities), permit fewer deviations from standard terms, raise its standard with respect to income and other characteristics of borrowers, etc.[40]

There are, however, some reasons to doubt how strong these effects will be. If the banking system is in a highly liquid position at the beginning of a period of credit restraint, it may be able to escape the effects of credit restriction on its loan policy generally by selling shorter-term government securities. This seems to have happened in 1955-56. Between December 1954 and February 1957, all commercial banks expanded their loans by \$18.8 billion while reducing their government security holdings by \$12.3 billion. Of course, once liquidity has been reduced substantially, the effects of a restrictive credit policy are likely to become stronger. To the extent that it does prove necessary or advisable for the banks to restrict their lending, the position of the consumer borrower for a number of reasons seems to be relatively secure. For one thing, consumer credit is a very profitable business for the banks. While, as bankers point out, short-run profitability is only one of the factors influencing the allocation of their supply of loan funds,[41] it is probably an important factor. In addition, there is the matter of costs. Instalment lending is usually handled

also devotes some attention to consumer-finance companies (small-loan companies). Since loans made by these companies make a less important and concentrated contribution to aggregate demand, we shall not discuss them.

[38] For information on interest charges on consumer instalment credit, see Part I, Vol. I, pp. 49-61, and Part IV, pp. 115-21.

[39] A survey of commercial banks at the end of 1955 by the American Bankers Association showed a ratio of net income (after gross instalment credit expenses) to outstandings of 5.29 per cent. Andersen, *op. cit.*, p. 433. See also Part I, Vol. II, pp. 63-64.

[40] See Part I, Vol. I, pp. 265-67; Part I, Vol. II, pp. 67-73.

[41] Part I, Vol. I, pp. 266-69.

by a separate department with its own staff, whose specialized training renders it of little value to other departments of the bank. To utilize the bank's staff to the full requires the maintenance of a large volume of consumer-credit activity.[42] Moreover, banks are undoubtedly subjected to some pressure by automobile, appliance, and other dealers who are dependent upon an ample flow of credit to maintain a profitable volume of sales. The competition that prevails among banks and sales finance companies may quite frequently make it a matter of vital importance to a bank to avoid alienating its dealer-customers. If the bank drives the dealer elsewhere for accommodation in a time of tight credit, it may be difficult to reattract his business at a later time when funds are more readily available.[43]

When credit conditions tighten, there are several ways in which banks may adjust their consumer-lending operations. As they sell securities to obtain additional funds for lending, the cost of funds obtained in this way tends to increase. One possible reaction as far as consumer credit is concerned is the tightening up of lending terms and credit standards. But an alternative that may often be more feasible in light of the pressures of competition may be to go on making loans on easy terms and, if necessary, raise interest rates charged. Dealers in most cases are unlikely to object to such action, in light of the well known insensitivity of instalment buyers to changes in finance charges.[44] Of course, interest rates charged by banks on most types of customer loans, including consumer loans, are notoriously sticky and influenced by custom, and it may often happen, in view particularly of the exceedingly high profitability of consumer lending, that easy lending terms will be maintained without any appreciable rise in interest rates, even though the cost of funds rises substantially.

B. *Sales Finance Companies*. There are about 2,600 sales finance companies in the United States, including a few large companies which operate on a national scale, a number of regional companies, and many small local concerns. It is estimated that about 75 per cent of the outstanding consumer loans of these companies as of June 30, 1955, were held by the 20 largest companies, having outstanding consumer loans of $25 million and over. About 60 per cent of the loans are held by the four largest companies.[45]

[42] Part I, Vol. II, p. 67.

[43] *Ibid.*, pp. 66-68. Relations between lenders and dealers are discussed in many parts of the study. See Part I, Vol. I, pp. 44, 54-56, 66-67; Part I, Vol. II, pp. 109, 149-53, 164-65; Andersen, *op. cit.*, pp. 424-40; W. P. Mors, "Comment" (on Andersen's paper), Part II, Vol. I, pp. 440-49; Marcus Nadler, "For Standby Consumer Credit Control," Part II, Vol. II, p. 17.

[44] Part I, Vol. I, pp. 60-61. In fact, maturities may be lengthened a little if necessary to offset the effect of higher finance charges on monthly payments. Incidentally, dealers may actually favor increased finance charges if (a) they share the profits with the lending agency through a dealer reserve arrangement (as is usually the case), and (b) they feel that their customers are insensitive to finance charges. On these matters, including the various prevalent financial arrangements between dealers and lenders, see Part I, Vol. I, pp. 54-56, 75-76; Part I, Vol. II, pp. 149-55, 164; and Andersen, *op. cit.*, pp. 427-28, 432-37.

[45] See "Survey of Finance Companies, Mid-1955," *Fed. Res. Bull.*, Apr. 1957, XLIII, 392-408, esp. Suppl. Table I, p. 403; Jacobs, *op. cit.*, p. 326.

Sales finance companies (especially the larger ones) obtain most of their funds by borrowing. Short-term funds are obtained by way of loans from commercial banks, with which the companies maintain lines of credit, and by the use of commercial paper. The smaller companies do not rely as heavily on commercial paper as the larger companies do, and to the extent that they do use commercial paper it is sold through the regular dealer market. The largest companies obtain large amounts of funds—though the proportion varies considerably with conditions—through the direct placement of commercial paper, largely with nonfinancial corporations. In addition, a substantial (but varying) share of funds is obtained by borrowing at long-term.

How does a restrictive general monetary policy affect the cost and availability of funds to finance expanded consumer-lending by sales finance companies? As the demand for consumer credit increases, finance companies apparently encounter some difficulty in raising additional funds through the issuance of open-market paper. In recent years, the large companies have perfected their techniques for direct placement of such paper. The issues of large companies are now essentially tap issues (*i.e.*, continuously available on demand) in any desired maturity from 30 to 270 days, with yields that rise in steps as the maturity increases. These issues have proved to be an attractive repository for the surplus liquid funds of large nonfinancial corporations and as knowledge of their properties has spread, this market has increased in scope. However, in the short run, the demand for this paper seems to be quite inelastic. It competes with other short-term low-risk money-market assets, including repurchase agreements with government security dealers, and, most important, Treasury bills. When credit conditions tighten, finance companies are able to maintain their share of these funds only by sharply increasing the interest rates they pay to a level competitive with the yields on the other short-term investments.[46] Similarly, the smaller finance companies apparently find it rather difficult in times of tightening credit to get additional funds by the sale of commercial paper in the open market.

When it becomes difficult to obtain additional funds through the issuance of open-market paper, finance companies are forced to turn more to banks for loans. The supply of funds from this source is also limited. It can be expanded either by opening new lines or by utilizing existing lines more intensively. The opening of new lines is likely to be rather costly and difficult, especially for the larger companies, due to the necessity of turning to a large number of small banks (lines at the larger banks being limited by the 10 per cent limit on loans to one borrower). Fuller utilization of existing lines seems to encounter some resistance from the lending banks in times of tight credit; and, moreover, it means that their availability in the contingency of a sharp drop in the supply of funds from commercial paper must be foregone.[47] In addition, the cost of bank funds seems to rise quite sharply as credit

[46] On the direct placement of commercial paper by large sales finance companies, see Jacobs, *op. cit.*, esp. pp. 353-79.

[47] On bank lines of credit to sales-finance companies and their utilization, see Part I, Vol. I, pp. 269-72; Part I, Vol. II, pp. 73-90; Jacobs, *op. cit.*, pp. 341-52.

tightens, due to the rise in interest rates charged, as well as to increases in compensating balance requirements.[48]

When credit tightens, the limited availability and rising cost of short-term funds, both from commercial paper and from bank loans, pushes sales finance companies increasingly into the long-term market.[49] Another factor working in this direction during a substantial expansion is the desire to maintain a balanced capital structure. In order to borrow large additional sums at relatively favorable interest rates by expanding their regular issues of short- and long-term debt, the companies must finance part of their expansion on an equity basis or by the issuance of subordinate debt, for the protection of their regular lenders. The method most commonly employed to meet this requirement is the issuance of subordinate debentures. These issues carry relatively high interest rates but need constitute only a relatively small fraction of the financing since they provide the basis for a multiple expansion of other forms of debt.[50] Tight credit conditions tend also to force an expansion in the amount of unsubordinated long-term debt. The need to turn to the long-term market appears to put the smaller finance companies at a disadvantage, since they have access to only a limited supply of long-term funds.[51] The large companies have little difficulty in obtaining funds, either by sales of debt instruments through regular channels, or, more frequently, by direct placement with large institutional investors. However, the interest cost of these funds tends to rise in such periods. More important to finance companies than the rise in interest rates, however, is the more restrictive terms on which they may be forced to borrow. In borrowing at long term, finance companies are especially interested in obtaining options which permit early repayment on lenient terms in case the volume of consumer credit should experience a decline, or in case interest rates should fall, thus permitting them to obtain funds from other sources at reduced cost.[52]

Thus, there are several routes by which a restrictive monetary policy can raise the cost of additional funds to finance companies and put some obstacles in the way of rapid expansion. However, aside from the higher cost, it does not appear likely that the larger companies will experience any great difficulty in obtaining the funds they want. The limited access to the capital market of the smaller companies puts them at a disadvantage, and their expansion may be significantly curtailed. This may, however, merely result in a shift of borrowers to the larger finance companies and the banks, which already do the bulk of consumer instalment financing.

The important question, of course, is how the forces working at the "whole-

[48] Part I, Vol. II, pp. 78-88; Jacobs, *op. cit.*, pp. 345-48.

[49] Part I, Vol. II, pp. 112-20; Jacobs, *op. cit.*, pp. 403-04; Shapiro and Meiselman, *op. cit.*, pp. 304-05.

[50] Jacobs, *op. cit.*, pp. 379-82.

[51] Part I, Vol. II, p. 111.

[52] On long-term borrowing of large sales finance companies and the importance of prepayment options, see Jacobs, *op. cit.*, pp. 379-93; also Shapiro and Meiselman, *op. cit.*, p. 305.

sale" level, discussed above, affect the policies of sales finance companies in their dealings with consumer borrowers and in the purchase of paper from dealers, and, in turn, how the borrowing of consumers and their expenditures are affected by these policies. Sales finance companies are, in general, quite profitable enterprises,[53] and their profits are based on volume operations. A considerable part of their costs are fixed costs which do not vary with the scale of operations in the short run. As a result, there is constant pressure to increase volume and spread these costs. Moreover, costs of credit investigation, etc., do not increase proportionately with the size of the loan; this creates pressure in the direction of making large loans on easy terms.[54] Another factor influencing finance company policies, as in the case of commercial banks, is relations with dealers (and in some cases manufacturers). Dealer pressure, as well as the desire to maintain a high volume of lending operations, may very well create a presumption in favor of raising interest rates rather than tightening credit terms and lending standards in response to a rising cost of funds.

C. *Conclusions.* There is little clear evidence that consumer credit has been greatly affected by the credit restraint of the past two years. Credit terms (down-payments and maturities) have been very markedly relaxed at the same time that credit has become generally tighter and more costly. While this relaxation of terms is part of a trend extending back for many years, it is notable that the latest spectacular manifestation of this trend coincides with a period of credit restraint. It is true that by early 1956 there were some signs of misgivings about excessively easy terms and a tendency to slow down the movement toward further relaxation and even to move very slightly in the direction of restraint. In explaining such actions, however, lenders in many instances referred to the increased risk and the fear of losses rather than to the tight credit situation.[55] The consumer credit statistics do not show any clear signs of restraint: extensions of consumer instalment credit in 1955 amounted to $39.1 billion, exceeding the previous record by over $7.6 billion, while in 1956 extensions were even larger, amounting to $39.6 billion. Outstanding instalment credit increased by $5.5 billion in 1955 and by a further $2.5 billion in 1956.[56]

It is difficult to evaluate the potency of the effects of general credit controls on consumer instalment credit and expenditures financed therewith. There is considerable room for honest difference of opinion. The authors of the Federal Reserve staff study are quite cautious in their conclusions. While pointing to responses at both the wholesale and retail levels, they conclude by questioning "whether the response of the consumer credit area as a whole to changes in credit conditions, and in particular to general monetary restraint, is sufficient either in degree or in timing to facilitate a national economic policy directed toward sustained high and rising levels of activity without inflation."[57] Jacobs, on the other hand, seems quite firmly convinced that monetary policy can be highly effective in restraining consumer instalment lending by sales finance

[53] Part I, Vol. II, pp. 29-32.

[54] Part I, Vol. I, pp. 67-70.

[55] Part I, Vol. I, pp. 281-82; Part I, Vol. II, p. 72.

[56] *Fed. Res. Bull.*, Apr. 1957, XLIII, 452-55.

[57] Part I, Vol. I, p. 285.

companies. He places great emphasis on the tightening of the prepayment options available to finance companies when credit restraint forces them to turn to the long-term market and expresses the view that if the Federal Reserve is prepared to engage in open-market sales in the long-term market, it can strongly affect prepayment terms.

This reviewer, however, is inclined to agree with Earley's comments. As he says, the sales finance companies "have shown a remarkable ability to adjust to both the shifts in needs for their services and in the conditions impinging on their supply of funds. They have been able to finance an enormous growth in activity in recent years without any serious evidence of financing strain; and they have been able to roll with changing money and capital market conditions by shifting sharply and rapidly from one source of credit to another."[58] As to Jacobs' argument with respect to prepayment options, it would seem that nothing would prevent the companies from paying a high enough rate of interest to obtain the options they desire. And the low elasticity of demand for consumer credit should make it possible for them to pass along the increased cost to consumers without affecting demand very much.

Shapiro and Meiselman contribute some suggestions with respect to the role of consumer credit as part of the mechanism by which general credit controls exert their effects on the economy generally. In particular, they argue that the shift of sales finance companies from short- to long-term borrowing induced by credit tightening serves an important function in transmitting the effects of Federal Reserve policy to the long-term market. They even contend that if selective controls should succeed in exerting a stabilizing effect on the consumer sector, they might do so at the expense of eliminating an important force which tends to affect long-term interest rates in such a way as to stabilize investment in producers' durable goods.[59] This argument is difficult to accept. Surely if the Federal Reserve thinks that long-term interest rates should vary in the interest of stability, all it has to do is to give up its self-denying "bills-only" doctrine and engage in open-market operations in long-term securities. It does not have to rely on an indirect and uncertain effect by means of which business investment is stabilized *as a result of* instability in consumer spending. Moreover, if every dollar of additional consumer spending financed with funds borrowed in the long-term market induced a full dollar reduction in business investment, the net change in total spending would be precisely zero. Such a matching of increases and decreases is fantastically improbable; thus it seems that the presence of consumer credit institutions which switch in this way may contribute significantly to instability.

III. *The Question of Selective Controls*

A considerable part of the study is given to an appraisal of the arguments for and against selective controls over consumer credit.[60] While most of the arguments are familiar, some issues are raised that merit discussion.

[58] Earley, *op. cit.*, p. 420.

[59] Shapiro and Meiselman, *op. cit.*, pp. 304-06.

[60] The pros and cons of selective controls are summarized in Part I, Vol. I, Ch. 16, while Part II, Vol. II, presents the views of a number of economists. American experience with selective controls is discussed in Part I, Vol. I, Ch. 14, while consumer-credit regulation

A. *The Issue of Discrimination.* Many persons object to selective controls in general on the ground that they discriminate against certain individuals and groups and that they involve the monetary authority in the allocation of credit when its legitimate function is merely to control the total available supply.[61] Those who take this position usually stress the "impersonal" and "nondiscriminatory" character of general credit controls.[62]

Clearly the impact of any kind of credit control, whether general or selective, is concentrated mainly on those individuals and groups who use credit to finance their expenditures. Thus, businesses financing capital expenditures out of internal funds and consumers who buy goods for cash are likely to be little affected by changes in credit conditions.[63] Moreover, the effects of general controls on credit-financed spending are uneven, since not all such spending is equally sensitive to changes in interest rates and credit availability. If the economy (including credit markets) were universally highly competitive, it could be argued that the differential sensitivities of different sectors reflected the pattern of consumers' tastes and the variations in the productivity of real resources and did not result in discrimination in the economic sense. However, this hardly seems to be the case. As was suggested earlier, consumer spending financed by instalment credit is rather insensitive to changes in general credit conditions. This insensitivity seems to be due in large part to factors which are not especially associated with the efficient working of the price system.[64] For one thing, there is evidence that in many (perhaps most) cases consumer borrowers are quite ignorant of the cost of financing and are therefore incapable of taking such costs into consideration in making decisions concerning the use of consumer credit.[65] Moreover, it appears that consumers are to some degree shielded from the impact of changing cost and availability of credit by the institutional structure—banks and finance companies—through which credit is made available to them. In fact, there seems to be some basis for the argument that general credit controls discriminate ***in favor of*** consumer credit.[66]

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abroad is treated in Part I, Vol. II, Suppl. V. Different statutory approaches to regulation are discussed in Part I, Vol. II, Suppl. VI. Part III presents a sampling of the views of the consumer-credit industry on the subject of selective controls.

[61] See Milton Friedman, "Consumer Credit Control as an Instrument of Stabilization Policy," Part II, Vol. II, pp. 73-103, esp. pp. 87-95; E. C. Simmons, "Consumer Credit Controls and Central Banking," *ibid.*, pp. 112-38.

[62] The paper by Simmons (*ibid.*) contains an unusually dogmatic affirmation of this view.

[63] Interest as an opportunity cost might affect internally financed business investment, and personal saving might be affected to some degree by the rate of interest. But it is doubtful whether either of these effects is very important.

[64] As Smithies says, "The curious market described in Mr. Andersen's paper (*op. cit.*) can hardly be relied on as an instrument of perfect justice." Arthur Smithies, "Comment" (on paper by R. P. Shay), Part II, Vol. I, p. 69. See also R. C. Turner, "Comment" (on paper by Friedman, *op. cit.*), *ibid.*, pp. 103-11.

[65] Part I, Vol. I, p. 60.

[66] See Nadler, *op. cit.*, pp. 3-29, esp. pp. 20-23; R. P. Shay, "Consumer Credit Control as an Instrument of Monetary Policy for Economic Stability," Part II, Vol. II, pp. 37-68; Smithies, *op. cit.*, p. 69.

If this is the case, the use of selective controls, properly coordinated with general credit controls, might make monetary policy more effective by broadening the area of its impact while at the same time making its incidence more equitable. As I see it, at the present time general monetary policy has disproportionate effects on a few credit-sensitive sectors—smaller businesses which must rely heavily on borrowed funds for expansion, residential construction, some types of state and local government spending—while leaving many important sectors (including consumer credit-financed spending) relatively unaffected. This means that when credit is restricted in a period of inflation, the few credit-sensitive sectors must be quite harshly affected if the total impact is to be significantly large. Not only may this be inequitable, but it means in practice that credit controls must be applied so cautiously, in order to avoid excessive disruption (for both economic and political reasons), that they are frequently very slow to exert the desired over-all effects. If, by the judicious use of selective controls in areas where they are feasible, the impact of monetary policy could be broadened, it might be made both more effective and more equitable.

B. *The Management of Selective Controls.* It is possible to conceive of a number of objectives toward which selective controls might be directed.[67] However, the only objective likely to command much support under peacetime conditions is the promotion of general economic stability—full utilization of resources and stability of the general price level. Most economists would probably agree that it would be undesirable to use consumer credit controls to stabilize production or prices in particular sectors of the economy.[68] Inevitably, of course, the monetary authority, in adjusting credit terms, would be influenced by conditions existing in the particular industries most affected by the controls. For example, if (as was the case in 1956) the automobile industry was depressed at a time when the economy as a whole was experiencing inflation, it would probably be deemed unwise to tighten credit terms applicable to that industry. However, similar problems may arise with respect to general credit controls. If, during a period of inflation, certain of the sectors most responsive to general credit controls were relatively depressed, a general tightening of credit would appear to be an inappropriate measure. The so-called general controls are not so general after all, and cannot be so sharply distinguished from selective controls as is sometimes implied. Each control technique—general monetary policy, selective credit controls, various fiscal measures—has its peculiar incidence, which makes it appropriate under some circumstances but unsuitable under other conditions.

There may be occasions when, quite clearly, developments which are con-

[67] Some possible objectives are listed in L. V. Chandler, "Comment" (on the paper by Nadler, *op. cit.*), Part II, Vol. II, pp. 30-31.

[68] Smithies suggests (*op. cit.*, p. 71) that consumer credit controls may be a useful means of maintaining the proper balance between consumption and investment needed for steady growth. I doubt if our knowledge of the relevant relationships is great enough to provide guidance for the effective administration of controls designed for this purpose. In fact, there are probably many "proper" relationships between consumption and investment, depending on the attendant circumstances.

fined largely to one sector or industry threaten to destabilize the economy. If the sector responsible is quite insensitive to general credit controls, it might require such a drastic tightening of general credit to deal with the situation as to have a disastrous effect on other more sensitive sectors. Under these conditions, what is needed is a sharp-pointed tool that will reach the sector that is causing the trouble without disruptive effects upon other parts of the economy. The classic example of such a situation is the stock market boom of the late 1920's. The granting to the Federal Reserve of power to regulate margin requirements can be traced to this situation.

The notion that certain types of monetary controls are really general, nondiscriminatory, and do not involve any interference with the allocation of resources, while others are selective and discriminatory seems to me to be a tremendous oversimplification. The central bank must be—and every central bank is, in fact—cognizant of and sensitive to the impact of its measures not only on the economy as a whole but on particular sectors and industries. I do not believe there are any simple "rules"—relating to the quantity of money or other variables—that can provide adequate guides to monetary policy. It seems to me that there are no more dangers involved in entrusting selective controls over consumer credit to the Federal Reserve than are involved in its present credit control powers, and that the availability of such controls would provide greater flexibility in adapting monetary policy to the exigencies of the variety of situations that might arise. If such powers are granted, however, the mandate should specify that they are to be used to promote general economic stability.

C. *Administration and Enforcement.* Consumer credit controls of the Regulation-W type involve some very serious problems of administration and enforcement.[69] These problems are of quite a different character from those encountered by the Federal Reserve in connection with its administration of the traditional tools of general credit control. Effective control requires that the regulations be made applicable to lenders other than commercial banks, which takes the Federal Reserve outside the normal range of its activities. There are many ways of evading the controls, and evasion would doubtless be a much more serious problem under normal peacetime conditions than it has been in periods of war or national emergency to which controls have been largely confined in the past. Some contributors to the study, notably Chandler, base a rather strong opposition to selective controls in large part upon what they regard as intractable problems of administration.[70] It should be remembered, however, that there are other possible ways of employing selective controls. Earley, for example, suggests that the controls be applied at the wholesale rather than the retail level.[71] He suggests the establishment of variable collateral requirements on new short-term loans by banks to nonbank instalment financing institutions and possibly the application of similar controls to direct

[69] See Part I, Vol. I, Ch. 14, for a discussion of administrative problems that arose during the war and postwar periods when selective controls were in effect. A strong statement of the administrative difficulties is to be found in Chandler, *op. cit.*, pp. 32-36.

[70] *Loc. cit.*

[71] J. S. Earley, "Further Comment," Part II, Vol. II, pp. 151-56.

consumer instalment loans by banks. Sales finance companies, when they borrow from banks would be required to post with the regulatory authority (presumably the Federal Reserve System) collateral in the form of consumer instalment paper. By raising these requirements above 100 per cent, credit could be restricted in this area. In addition to controlling the quantity, qualitative controls could be applied by making consumer paper involving less than a specified down payment and greater than a specified maturity ineligible for use as collateral. This scheme is suggestive and indicates that it may be possible to find substitutes for controls of the Regulation-W type if these should prove to be difficult to administer and enforce. Until many such control schemes have been investigated, the problems of administration do not constitute a conclusive argument against selective controls. As Ruth Mack puts it, "In view of the variety of agencies that might be entrusted with the job of regulation, and the variety of means they could employ, it seems reasonable to assume that where there is a will there is a way."[72]

IV. *Concluding Comments*

The study serves a useful function in pulling together an extensive factual picture of the role of consumer instalment credit in the American economy, but it does not supply any startlingly new analysis. Most of the arguments, pro and con, regarding selective controls were familiar to all students of monetary policy. There is the same room for legitimate difference of opinion that there was before the study was prepared.

The length of the study gives the casual reader a somewhat exaggerated impression of the complexity of the subject. There is a great deal of duplication, arising in part from the way in which the work was organized and prepared. Much of the material, while interesting and useful, has little relevance to the question of selective controls toward which the study is supposedly oriented. Actually there is considerable agreement concerning some of the basic issues. For example, most of the participants seem to feel that consumer credit makes at least a modest contribution to economic instability and that it is rather insensitive to the general instruments of monetary policy.

Some of the material in the study has not been referred to in this review, except incidentally. The opinions of the consumer credit industry (Part III of the study) are of some interest. As might have been expected, the vast majority of the industry is opposed to selective controls. Some of the observations made, however, even by those opposing regulation, seem to support the view that consumer credit is insensitive to general credit controls.[73] The survey of new car purchasers for 1954-55 (Part IV) contains much interesting material concerning terms of financing, the use of credit, and the attitudes of buyers. Some valuable contributions are made to our knowledge of the factors (such as income status, liquid-asset holdings, home ownership, age and family status, etc.)

[72] R. P. Mack, *ibid.*, p. 151.

[73] For example, see the statements by the Bank of America National Trust and Savings Association (p. 37), The Bank of California (p. 53), the Bowery Savings Bank (p. 54), The Easton National Bank (p. 55), the First Pennsylvania Banking and Trust Company (p. 56), Bankers Commercial Corporation (pp. 91-95).

associated with the use of consumer credit.[74] This information is potentially useful as an aid in estimating the incidence of various policies, such as selective credit controls. A paper by J. S. Atlee contains some interesting suggestions concerning the kinds of data that are needed for a satisfactory analysis of the effects of consumer credit.[75]

Broad as the scope of the study is, it seems to me that it is not sufficiently comprehensive to provide a conclusive answer with respect to the wisdom of selective controls. There is need for intensive study of the effects of our present system of general credit controls on various sectors of the economy, such as investment by business (large and small) in fixed capital and inventories, residential construction, state and local government spending, and so on, before we have an adequate basis for appraising its incidence and effectiveness. If our present monetary controls exercise potent and fairly well diffused effects on most sectors, it may not be too serious a deficiency if one sector such as consumer credit is not much affected. If, on the other hand (as I suspect), many important sectors are relatively insensitive to these controls, it becomes important to find ways to strengthen monetary policy and broaden its impact, and selective controls in some of the strategic sectors, such as consumer credit, become eligible for serious consideration.

[74] Part I, Vol. II, Suppl. III; J. B. Lansing, E. S. Maynes, and M. Kreinin, "Factors Associated with the Use of Consumer Credit," Part II, Vol. I, pp. 487-520; Tobin, *op. cit.*; Katona, *op. cit.*

[75] J. S. Atlee, "Consumer Credit Expansion: Macroeconomic Analysis and Data Requirements," Pt. II, Vol. I, pp. 254-93.

PROFESSOR COLE'S *HISTORY OF SOCIALIST THOUGHT*

A Review Article

By Paul M. Sweezy*

This is undoubtedly G. D. H. Cole's *magnum opus*,[1] conceived on a grand scale, executed with great skill and learning, and destined to take a permanent place among the classics of socialist literature. There is nothing even remotely comparable to it in English: it fills a yawning gap in the writing of modern history, of which economists, political scientists, and sociologists, no less than historians themselves, have long been painfully aware.

I hasten to add that the volumes before us (numbered I through III but comprising four physical volumes, the last being divided into two "parts" each between its own covers) by no means bring Professor Cole to the end of his task. He promises us a further "volume" on the period after 1914, and, if he carries on at the level of detail and comprehensiveness established so far, this final volume is quite likely to consist of two or three or even more separate parts. It is altogether desirable that it should be so. One of Cole's greatest strengths as an historian of socialism is that he himself has long been a part of the movement and has a fine "feel" for its aims and problems and controversies. This quality should manifest itself to best advantage in relation to the last five decades, for it is during this period that Cole has played a continuously active role in the British and international socialist movements. There is no one living today who is better qualified to understand and interpret for others this latest phase in the development of world socialism.

This is not to argue that Cole, any more than anyone else, is ideally qualified for the difficult assignment he has set himself. As he tells us in the prefaces to Volumes I and II, he is not a linguist and has had to rely very largely on English and French sources. For the period covered by the first volume, this is a minor handicap, since most of the important early socialist writing is in these two languages. But it becomes more serious as the socialist movement spreads; and by the time the 20th century is reached one becomes increasingly aware that a growing part of Cole's narrative is based on second-hand sources. This is, however, far from being a fatal defect, for Cole has not only made judicious use of the second-hand sources but has also supplemented them from his own observations and drawn extensively on the first-hand knowledge of many friends and acquaintances throughout the international socialist movement. A perhaps more serious deficiency, in an historian of thought, is Cole's

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[1] *A History of Socialist Thought*. By G. D. H. Cole. Vol. I: *The Forerunners, 1789-1850;* Vol. II: *Marxism and Anarchism, 1850-1890;* Vol. III: *The Second International, 1889-1914*. (New York: St. Martin's Press. Vol. I, 1953. Pp. xi, 346. $5.00. Vol. II, 1954. Pp. xi, 482. $6.00. Vol. III in 2 Parts, 1956. Pp. xvii, 1043. $16.00.)

characteristically English impatience with abstract ideas and complex chains of theoretical reasoning. This quality shows most clearly in his treatment of Marx. It is not that Cole, like so many critics of Marx, displays a special animus against his subject. On the contrary, he obviously has a great admiration and liking for Marx, but I am afraid he has not succeeded nearly as well as he has in the case of numerous other socialist thinkers in understanding what Marx was trying to do and presenting to readers the essence of Marx's message. I shall return to this subject below.

These weaknesses—and there are others which will be commented on in due course—should not, however, be allowed to obscure the magnitude of Cole's achievement. He chose an exceedingly broad canvas on which to paint, and he was perfectly aware, as he says in the preface to Volume III, that he could not "hope to have avoided making many mistakes, or faulty judgments"—but he immediately adds, "though I hope I have got most of the essentials broadly right." The point is that this is precisely what he has done, "got most of the essentials broadly right." And this is an achievement beside which the most dazzling displays of scholarly virtuosity pale into insignificance. After you have read these volumes, you know what socialism is and what it isn't; you understand its inner turbulence and its outer struggles; you know who the great socialists have been and how they have been related to each other; above all, you grasp the inexhaustible vitality of the movement and understand why, despite innumerable failures and setbacks, the entire history of socialism has been a record of continuous rebirth and inexorable advance.

This may be taken to imply that Cole's work is more than a history of socialist *thought*, and indeed it is. True, his original intention, as explained in the preface to Volume I, was to limit himself narrowly to the field of intellectual history:

> I wish to make it clear that this book is not meant to be a history of Socialism, but only of Socialist *thought*, with such references to actual movements as are necessary to explain the thought. Indeed, the writing of a comprehensive history of Socialism would be an impossible task for any single author, and would have to be on a much bigger scale than anything I have in mind to write—or should have, even if I possessed the requisite knowledge.

Fortunately, Cole did not permit himself to be hobbled either by this initial statement of purpose or by the recognition of his own limitations. The first volume, to be sure, is intellectual history of a largely conventional sort, but thereafter the narrative becomes increasingly broad and complex and conforms less and less to any definable pattern. There is a good deal of political history in Volume II (for example, the admirable chapter on the Paris Commune and the treatment of the *Kulturkampf* and the antisocialist laws in Germany), and in Volume III the development of trade unions and cooperatives, often non- or even antisocialist in their orientation, claims an increasing share of the author's attention. Moreover, of the literally scores of personalities passed in review in the later volumes, Cole is obliged to say of an increasing proportion that they contributed nothing or next to nothing to socialist thought. The

country-by-country survey contained in Part II of Volume III could much more accurately be entitled a history of national working-class movements than a history of socialist thought.

There is, of course, a reason, quite apart form the author's personal predilections, why a book which set out to be a history of socialist thought should progressively escape from the confines of its title. Up to about the middle of the 19th century, socialism existed largely in the minds of a relatively few original and often brilliant thinkers—a situation made-to-order for the intellectual historian. But after that, socialism increasingly takes on institutional forms, and its leaders are more likely to be organizers or politicians than thinkers. One can go further and assert that after 1850 the scope for creative socialist thought was in a real sense narrower than it had been. It is hardly an exaggeration to say that all possible thoughts about the shape of the socialist society of the future had already been had by 1850: thereafter they simply reappear in new combinations and permutations. Original socialist thought becomes increasingly concerned with analyzing the existing social order and devising appropriate means of transforming it: in other words socialist thought more and more merges into social science—a much broader and less tractable field for the intellectual historian to plow than the system-building of St. Simon, Fourier, Owen, and the rest of the early socialists. Finally, as socialism takes on organizational forms and spreads to new countries and continents, it plays an increasingly important role in shaping the whole course of human history and becomes correspondingly more difficult to isolate for purposes of description and analysis.

I am not suggesting that what Cole has written is not a history of socialist thought, but that it is a good deal more than that, and necessarily so. That it falls short of being the comprehensive history of socialism which he disclaims either the intent or the knowledge to write is an entirely different matter. The whole work might perhaps most aptly be described as an extended essay in the history of socialism: as such it is both a highly personal product of its author and a precious source of knowledge and insight to its readers.

It is not surprising that Cole should be at his best in dealing with the development of British socialism. Author of several standard works on the history of the British working-class movement, he possesses an encyclopedic command of the facts, a great sympathy for his own political and intellectual forebears, and an incredibly sure touch in placing them in the total picture of which they form component parts. Godwin and Paine, Robert Owen, the Ricardian socialists, the Chartists, Marx's collaborators in the First International, H. M. Hyndman and the Social Democratic Federation, William Morris and the Socialist League, Shaw and the Webbs and the rest of the Fabian essayists, John Burns and the New Unionism, Keir Hardie and the Independent Labour Party, Ramsay MacDonald and Arthur Henderson and Philip Snowden of the early years of the Labour Party—all these and many more are passed in review, brought to life, and put into the right relation to each other and to the movement as a whole. In every case, Cole does a good job and in some a superb job. I think I can claim to have studied the history of British socialism with more than average diligence and interest, and yet I

found fresh material on nearly every page of Cole's treatment. To mention but a few samples: The analysis of the re-emergence of British socialism in the 1880's and 1890's, and especially the role played by Chamberlain and the Irish question, is first-rate. William Morris apppears not as the backward-looking medievalist he is so often painted but as one whose insights into the dilemmas of the coming socialist society were both brilliant and profound. I had a feeling after reading Cole on Morris not only that I wanted to reread Morris but that I would find in him clues to some of those difficult and disturbing problems which the emerging socialist societies of the 20th century have yet to face up to, let alone solve. Ramsay MacDonald, though described without rancor or malice, emerges as a truly sinister figure, not because of ill will or bad intentions but because of stupidity and vanity. And Arthur Henderson, the real architect of the present-day Labour Party, is seen as the very embodiment of the strengths and weaknesses of the entire British working-class movement. To be sure, I found myself in disagreement with Cole from time to time in his treatment of particular doctrines or thinkers. For example, I think he exaggerates the extent of the direct influence exercised on Marx by some of the Ricardian socialists. In rationalizing the Fabians' economic theories, he overlooks or minimizes the very confusions and contradictions which are most characteristic of their thought, particularly in connection with the theories of rent and profit. His discussion of the crucially important doctrine of gradualism as it appears especially in the *Fabian Essays* fails to bring out, or at least sufficiently to emphasize, that there are in reality two distinct ideas of gradualism which have very different political implications—one, resembling the "creeping socialism" doctrine so dear to present-day American conservatives, holds that socialism is coming into being quite regardless of the will or actions of political parties and leaders; the other also holds that the advent of socialism will be gradual, but that it will come at all only as the result of the conscious acts and policies of an organized socialist party.[2] But all these disagreements are on relatively minor issues and in no way detract from my admiration for Cole's masterly treatment of the rich heritage of the movement whose most distinguished representative he now is.

Cole's skill and insight as an historian of anarchism, which at least to the end of the 19th century was inextricably intertwined with socialism, are perhaps more surprising. He both sees and sympathizes with the point of view of all save the extreme nihilists, and yet he understands the hopeless impracticality of their schemes. As a result he gives them full credit for their insights—in the case of Bakunin, perhaps a little more than full credit—and he rightly assigns to them an important, if indirect, role in shaping socialist doctrines. (In this connection, Cole missed an important point in not stressing the close relation between anarchist theory and the Marxian doctrine of the withering

[2] There is one respect in which it seems to me that Cole signally fails to give the Fabians their due. He mentions Bernstein's association with the Fabians during his years in England, and once speaks of "Webb and his disciple Bernstein." But it seems to me that the link deserves considerably more attention in a history of socialist thought. Not only does it establish a close relation between British and continental reformism, but more important it shows that Fabianism was the direct inspirer, through Bernstein, of *theoretical* (though not practical) German Revisionism.

away of the state: in a very real sense, this doctrine was *the* Marxian answer to the anarchists.) Cole has too much commonsense to *be* an anarchist, but he shares many of their values and this helps him to deal effectively with their work. After reading these pages one understands better why Cole himself made his first public appearance as an advocate of guild socialism, that special British brand of anarcho-syndicalism which flourished for a few years prior to the first world war.

In his treatment of Marx and Engels Cole is, I think, much less successful. References to, comments on, and partial analyses of Marxian doctrine occur pretty much throughout the whole work, but sustained interpretative effort is largely concentrated in three chapters totaling some 80 pages (Ch. 22 and 23, Vol. I, and Ch. 11, Vol. II). The first of these, dealing with the *Communist Manifesto*, has little to say that hasn't been said many times before and calls for no particular comment here. I could only wish that Engels' share in authoring the famous document had been given more adequate recognition: Cole doesn't even mention Engels' draft in question-and-answer form,[8] a remarkable work in its own right which shows how completely the content, if not the form, of the Manifesto was a joint product.

It is when we reach the chapter on "Marx and Engels—Marxism to 1850" that my serious reservations begin. The level of the analytical (as distinct from the purely descriptive) parts of this chapter struck me as being about that of many student discussions of Marxism I remember from 20 to 25 years ago at a time when the whole subject was almost entirely new to Anglo-American universities. Cole propounds page after page of propositions and questions in the manner of a don at a tutorial session, and most of them seemed to me either pointless or based on a quite superficial reading of Marx and Engels. For example, Cole asserts that "Marx seems to be assuming that the 'powers of production' progress independently of men's wills," and then asks, "But do they?" Of course they don't, but Marx never dreamed of assuming any such thing. A discussion that begins this way is bound to lead nowhere. Or again:

> "Men make their own history," Marx asserts, in addition to asserting that the productive relations into which men enter, and which shape their history, are entered into independently of their wills. Can both statements be true? Only if men are conceived as making their own history under a law of necessity imposed upon them, which governs the progress of their knowledge and of its application to the practical arts of life. Only if there is a necessity which is the universal mother of invention—so that whatever men originate is to be regarded as the necessary response to the conditions which pose the problem. Marx, I think, believed that there was such a necessity. . . .

This is a complete mystification of perfectly clear ideas which stand at the very heart of Marx's theory of society and history. What is "imposed" upon men, according to Marx, is not some extraneous "law of necessity" but their own past in the shape of a socio-economic order with certain class relations,

[8] Available in English under the title *Principles of Communism*, translated by Paul M. Sweezy (New York, 1952).

institutions, ideologies, and so on. Every generation is born into a world it never made, and what it accomplishes is strictly limited by the real alternatives open to it. It follows that the more man understands, the more history he can make. But there is no law of necessity involved, only the brute (but still relative) interactability of the physical and human environment.

When Cole comes to deal with *Capital* in Volume II, the result is, if anything, even less helpful. Though he recognizes that Marx was trying to do something different from his neoclassical contemporaries, Cole seems never quite able to make up his mind what that something was, nor to apply to Marx standards of judgment which are at bottom other than those which orthodox academic economists have been applying at least since Böhm-Bawerk. The result is that Cole can see in the first nine chapters of *Capital*, in which Marx develops his theory of value and surplus value, nothing but a gigantic exercise in metaphysics, designed to prove something that was obvious from the outset.

To quote:

> The whole Marxian theory of value, stripped of its Ricardian trappings and of the complications into which Marx was led by his attempt to refine upon the conclusions of his anti-capitalist predecessors, amounts to the very simple assertion that under capitalism the owning classes appropriate a part of the product of industry and agriculture without working for it, and that this involves the exploitation of the subject labour class.

And again:

> Was it . . . Professor Tawney who said that he did not need the theory of surplus value to tell him that the capitalists exploited the workers? Yet that, in effect, was what the theory did proclaim—that, and nothing besides.

In keeping with this view, Cole interprets Marx's discussion of the relation between values and prices in Volume III of *Capital* to be a sort of shame-faced admission of the unreality of the theory of Volume I and an attempt to substitute, by the back door as it were, a cost of production theory similar to that expounded by John Stuart Mill. Cole, for his part, implies that Marx would have done better to scrap the whole classical approach and adopt the new marginalist theories of Jevons and Menger (Carl Menger, by the way, not Anton as Cole writes, doubtless by a slip of the pen, on page 276 of Volume II). Marx's failure to do so, in Cole's view, robs this part of his work of any claim to be considered scientific, though he concedes that Marx "believed in his own system and put it forward in entire good faith, quite unaware that its claim to be 'scientific' was really bogus, and that it was not even a usable hypothesis that could be tested by the facts, but a call to action based on unproven beliefs."

In all this there is unfortunately no recognition of themes which Marxian literature has increasingly stressed in recent years. The first nine chapters of *Capital*, it is now widely recognized, are not primarily concerned with exchange values or prices in the sense of either classical or neoclassical economics but rather with what today might be called economic sociology. Beginning from an analysis of "The Commodity," Marx attempts to show that an exchange

economy is one in which producers work for each other without being immediately aware of the fact. Value, which appears as a relation between things, is in reality a relation between people; the law of value is the regulator of an atomistic economy which is both unplanned and uncontrolled by conscious human will. When, in such a society, the means of production come to be monopolized by a small class of owners, labor power itself becomes a commodity and the great majority of human beings come directly under the sway of the blind law of value. This is a system in which, to use the Emersonian phrase, "things are in the saddle and ride mankind." Exploitation is masked (from both exploiters and exploited) as fair exchange. The good fortune of some, the deprivation of others, the calamities which may be visited upon all—these appear as but the outcome of the operation of natural laws over which man has no control. Alienated from and dominated by the products of his own knowledge and labor, man is progressively depersonalized and dehumanized. To lay bare these relations, to expose the reality behind the façade of market prices, to show up the capitalist system as a *particular form* of exploitation obeying specific laws of its own—these are the great objects of the early chapters of *Capital*. An historian of socialist thought need not approve of them or regard Marx's effort as successful, of course, but it does seem that at this late date there is little excuse for failing so completely as Cole does to grasp the range of topics with which Marx was grappling or to appreciate the reasons why this aspect of Marx's theory has exercised such a fascination for succeeding generations of social theorists.

I do not mean to suggest that there is nothing of interest or value in Cole's chapter, "Marx and Engles—*Das Kapital* and *Anti-Dühring*" (Ch. 11, Vol. II). Much of the narrative is up to Cole's usual high standard, and many of the detailed criticisms are well taken. But on the whole, I must confess to a feeling that his interpretation of the founding fathers of Marxism reflects a state of knowledge, or rather of ignorance, prevalent in Anglo-American academic circles some two to three decades ago. Since then, even academic Marxology (to use a term of Schumpeter's) has undergone great development. As a history of socialist thought, Cole's work is the worse for its author's failure to keep up.

I suppose it is not only a prerogative but also in a sense an obligation of a reviewer to comment on those parts of an author's work with which he can claim some special familiarity. With this in mind, I would like to conclude with a few remarks on Cole's treatment of American socialism.

As far as the 19th century is concerned (Ch. 13, Vol. II), Cole follows traditional lines. But when it comes to the period after the formation of the Socialist Party in 1901 (Vol. III, Pt. II, Ch. 21), he raises questions which go far beyond the range of the conventional history books, questions which moreover are in a sense crucial to our interpretation not only of American but of world history during the past half century. Cole opens the chapter with a recital of the impressive progress made by the Socialist Party in the years 1901-1912. It grew from very small beginnings into a nationwide organization with 150,000 individual members and a voting strength of nearly a million. Its leaders, despite bitter factional fights, were convinced that "the tide was

flowing strongly in favour of Socialism in the United States as well as in Europe, and even that the victory of Socialism was only a matter of a few more years of successful Socialist propaganda"—and this view was by no means confined to the Socialists themselves.

> Yet within a very few years of this rapid and confident advance the American Socialist movement lay in ruins: nor has it to this day ever been effectively rebuilt. This decline and fall has been attributed to the influence of the first world war; but in fact the decay had set in and had gone a long way before the war began, even in Europe. In 1913 the American Socialist Party was already tumbling down fast from the height it had reached in 1912: nor was any alternative organization even beginning to take its place. . . . Evidently it is of the greatest importance to discover why these things happened—both why American Socialism appeared to be making such swift headway during the early years of the present century, and why it suffered eclipse.

This is the problem Cole poses; and, after a lengthy descriptive and narrative detour, he returns to it and presents his own solution, summing up as follows:

> I have been trying to show why, even after the epoch of "free land" had ended and the "frontier" had been in effect closed, there was still no room in the early years of the present century for the growth of a really powerful American Socialist movement. The outstanding reasons, as I see them, are two—the absence of the political motive which rallied the working classes of Europe in hostility to autocratic, militaristic states, and the division of the working class into a privileged and an unprivileged group, between which was a wide gap both in standards of living and ways of life, including the barrier of language. This second factor rendered impossible in America the half-way solution of alliance between the Socialists and the Trade Unions in a Labour Party prepared to champion the claims of the whole working class. It did this fully as much as the first factor ruled out the possibility of a Social Democratic Party on the German model.

It will be seen from the juxtaposition of these two passages, I think, that Cole never really answers his own original questions—a fact which may be obscured from the reader, and perhaps from the author himself, by some 40 pages of intervening text. No doubt the factors adduced by Cole—the existence of political democracy in the United States, and the division of the working class—were important, and they might be taken to be an adequate explanation of a slower development of socialism in the United States than in Europe. But they obviously cannot be taken to explain why the American socialist movement grew with extraordinary rapidity for a little over a decade and then even more quickly collapsed. Clearly, up to a point there must have been strong forces *favoring* the growth of socialism, and these forces must have ceased operating with dramatic suddenness.

Here is a first-class historical mystery, and it is a great merit in Cole to have formulated it so clearly and concisely, even if it remains for others to unravel it. This is, of course, not the place to attempt to analyze the problem in any

detail, but I may perhaps be permitted to end with a few tentative suggestions for anyone who may be minded to tackle the job.

In the first place, I think it is definitely wrong to date the decline of the Socialist Party from 1912. It is true that the Party passed through a severe crisis in that year, but no one should know better than Cole that crises and splits are endemic to all, or nearly all, political movements and that to interpret a given crisis, *ex post,* as the starting point of a fundamentally new trend is, to say the least, a highly questionable procedure. The fact is that no great changes took place *outside* the socialist movement in 1912, and in the absence of such changes it would be natural to assume that the movement would in due course recover from its internal difficulties and resume the advance of the immediately preceding period.

The same cannot be said of the war years, however. Here it is altogether reasonable to assume that the severe internal crisis which was precipitated by the outbreak of war was indeed accompanied by external changes which decisively altered the conditions under which American socialism had previously flourished. If we can identify these changes we should be in possession of the clue to the mystery.

Even so, the solution to the problem is by no means obvious, and I would not be surprised if in seeking it we should be led to see certain aspects of American economic history in a new light. We are, for example, accustomed to thinking of the period before the first world war as a sort of golden age of capitalism antedating all the troubles with which the present generation of economists is so familiar. Actually, I think this is at the very least doubtful and that a more nearly correct view would be that put forward by Veblen in *The Theory of Business Enterprise* (1904), namely, that since the 1870's "chronic depression has been the rule rather than the exception in business"—a state of affairs which lasted, with the usual ups and downs due largely to extraneous causes, until about a year after the outbreak of war in Europe.[4] The first world war, however, was an extraneous cause of an altogether unprecedented magnitude, and its direct and indirect stimulating effects lasted, with one sharp but relatively brief interruption, for nearly a decade and a half.

If this analysis is accepted, quite a number of things would seem to follow. The recurring hard times of the closing decades of the 19th century would be expected to prepare the ground for the kind of rapid growth of a socialist movement which actually took place between 1900 and 1912. The 1912 crisis in the Socialist Party can then be interpreted as a normal growth phenomenon, and we can surmise that if the more severe depression that was clearly beginning in 1914 had run its course, the Party would soon have recovered and resumed its advance. What actually happened, however, was that at the very same time that the Party split into pro- and anti-war factions, an era of un-

[4] So far as I know, no economist, contemporary or later, ever paid any attention to Veblen's "chronic depression" theory. This is not due to its having been put forward in an offhand or casual manner: the fact is that it occupies a prominent place in *The Theory of Business Enterprise*. I should add, however, that I have not searched the literature with this question in mind.

precedented prosperity opened. It was this prosperity, and not the existence of political democracy or divisions among American workers, that smothered the Socialist Party and relegated the movement for a long time to a peripheral role in American life.

I think it can be shown that a theory along these lines can be successfully extended to account for the fate of American socialism in more recent decades, but this is obviously not the time or place to attempt to do so. I hope, however, that an occasion to take up these problems again will soon present itself, and I can think of none more suitable than the eagerly awaited publication of Cole's concluding volume.

COMMUNICATIONS

External and Internal Public Debt

A new approach to the public debt arose from the budgetary implications of the great depression and the Keynesian "revolution" in economic thought. Central to this approach, which remains the current orthodoxy, is a fundamental conceptual distinction between internal and external debt. The internal debt is not burdenless because of the transfer difficulties,[1] but aside from these it places no aggregate pressure on the economy. The alleged existence of such pressure stems from the falsely drawn analogy between the individual and the public economy. The phrase "we owe it to ourselves" or something quite similar characterizes most modern arguments. In part through neglect, but more often through explicit statement, the current analysis supports the traditionally accepted vulgar views in regard to external debt.[2]

In this note I propose to re-examine this one aspect of the currently orthodox debt theory. An extension of the theory to the full-employment setting of the postwar period reveals that serious gaps and errors are present. Identical policy implications for debt policy, even in depression, may be derived from an analysis which is both more correct and more general.

The fundamental error in accepted debt theory is methodological. It consists in a failure to define properly the alternatives subjected to comparison.[3] A typical way of stating these alternatives is the following: If a given state or community could be confronted with two alternative situations identical in all respects save that in one an internal debt service charge is present while in the other such a charge is absent, the first is obviously to be preferred.[4] The difference in the desirability of the two situations is widened if the debt is held externally rather than internally. It is equally clear that if a debtor community were to be faced with one of two alternative situations identical

[1] Wright, Ratchford, and Meade were instrumental in forcing a recognition of the transfer burden. See D. M. Wright, "The Economic Limit and Economic Burden of an Internally Held National Debt," *Quart. Jour. Econ.*, Nov. 1940, LV, 116-29, and "Moulton's 'The New Philosophy of the Public Debt,'" *Am. Econ. Rev.*, Sept. 1943, XXXIII, 573-90; B. U. Ratchford, "The Burden of a Domestic Debt," *Am. Econ. Rev.*, Sept. 1942, XXXII, 451-67; J. E. Meade, "Mr. Lerner on 'The Economics of Control,'" *Econ. Jour.*, Apr. 1945, LV, 47-70.

[2] For a characteristically clear statement, see A. P. Lerner, "The Burden of the Public Debt," in *Income, Employment, and Public Policy: Essays in Honor of Alvin H. Hansen* (New York, 1948), pp. 255-75.

[3] K. E. Poole senses this error in current public debt analysis, but he does not extend his discussion. See his *Public Finance and Economic Welfare* (New York, 1956), pp. 587-88. Ragnar Frisch has recently made a similar methodological criticism of Hotelling's tax analysis. See *Econometrica,* July 1956, XXIV, 311.

[4] This is precisely the comparison employed by Meade (*op. cit.*, pp. 62-63). Meade's comparison is used without criticism in E. D. Allen and O. H. Brownlee, *Economics of Public Finance,* 2nd ed. (New York, 1954), p. 135.

in all respects save that in one the public debt instruments are externally owned while in the other these instruments are domestically owned, the second of these alternatives is deemed preferable. On this simple logic the external debt would seem more burdensome on the community as a whole than the internal debt of like amount.

Alternatives of the sort mentioned above cannot, however, exist in the real world, actually or conceptually. The compared situations cannot possibly be identical in *every other* respect than debt ownership, and the analysis which overlooks or ignores the other necessary differences must embody serious error.

In order to define properly the realizable alternatives for comparison, it is necessary to consider them as of the moment of initial decision or choice. The argument is more direct if we limit it to the external-internal loan comparison, that is, if we assume that the decision to borrow has already been made. It should be emphasized, however, that the logic is equivalent in application to the internal debt-no debt case. I shall assume that the state is faced with an unavoidably large and abnormal expenditure. I shall also assume initially that this expenditure is completely wasteful. This allows the whole question of the productivity or unproductivity of the public project to be deferred until a later point in the analysis. Finally, I shall assume that the economy is characterized by reasonably full employment of its resources. This assumption will also be relaxed later. The public expenditure is to be financed by a public loan. Financing by means of an extraordinary tax levy or by inflation has been ruled out. The only decision concerns the form the loan will take; shall the government debt instruments be marketed domestically or in foreign countries?

If the loan funds are secured from internal sources, the public expenditure will be financed, in the main, out of current domestic savings which presumably could have been, and would have been, invested productively elsewhere in the domestic private economy.[8] The community's private capital stock is reduced, and future private income streams are correspondingly lowered.

If the loan is floated externally, that is, if the state sells its bonds in foreign markets, the public expenditure is financed out of foreign savings. The domestic privately employed capital stock is not affected; current incremental additions to this stock are not drawn into government security markets. Therefore, as compared with the internal loan situation, the private income stream over future time periods is higher. To this higher income stream there must, of course, be attached a drainage necessary to service the external debt.

It cannot be overemphasized that the internal and the external debt ***cannot*** legitimately be compared on the assumption of an equivalent income stream in the two cases. The gross income of the community in any chosen future time period cannot be thrown into the *other respects* which are assumed identical and neglected. The external debt must allow the community to receive a higher gross income in the future, quite apart from any consideration of the productivity of the public expenditure financed.

[8] In so far as the sale of government securities increases the rate of interest, some effect on the saving-consumption pattern will result. Some of the loan funds might in this way be drawn from current consumption spending.

Once this simple fact is recognized, the choice between the two debt forms is somewhat more complicated than the current orthodoxy implies. The community must compare one debt form which allows a higher income over future time periods but also involves an external drainage with another debt form which reduces the disposable income of the future but creates no net claims against such income. The choice must hinge on some comparison of the rates at which the required capital sums originally may be borrowed.

If we may neglect distributional considerations, and, more importantly, if we neglect the frictional or second-order effects of making the interest transfers, the community should be indifferent between the two loan forms if the external borrowing rate is equal to the internal rate of productivity on capital investment. The latter neglect obscures important aspects of the problem, and I shall discuss it at some length later, but it is useful to proceed at this stage on the assumption that the making of international transfers is no more difficult than the making of internal transfers.

The analysis is readily extended to the other possible situations. If the internal or domestic rate of productivity on capital investment exceeds the rate at which funds may be borrowed externally, the community will be better off if it chooses the external loan form.[6] In the third possible case in which the internal rate of return falls short of the external borrowing rate, the community will be worse off with the external than with the internal debt. Net income of the community after debt service will be lower, and the external debt will impose a "differential" burden. But it is noted that such a burden is no different from that which would be imposed by the internal loan in the situation mentioned immediately before this one. The differential burden arises, not from the locational source of the loan funds, but from the fact that the community has not chosen the most "economic" source. Under the "equal ease of transfer" assumption, it will always be advantageous to the community or the government to borrow in the most favorable market.

This "equal ease of transfer" assumption may appear to remove the fundamental elements of the problem. That this is not really the case may be illustrated by reference to the problem of state and local government debts. Such debts are normally classified as "external." Yet there is no apparent "transfer problem" in the Keynes-Ohlin sense involved in making the interest payments on these obligations. Such interstate and interregional transfers are presumably effected as smoothly as are the purely "internal" transfers required for servicing the internally held national debt. These results stem, of course, from the existence of the common monetary system and the comparatively free resource-mobility among the separate regions of the country. But for the individual state, the choice between loan forms should be dictated purely by market criteria.

This illustration should suffice to indicate that the problem of transfer is a second-order one when the distinctions between external and internal debt

[6] This conclusion holds even when it is recognized that some of the internal loan funds may be drawn from consumption spending (see footnote 5). All that is required here is that the present value of future consumption be computed on the basis of the market rate of interest.

are considered. No attempt need be made to minimize the possible differences in the two cases when genuinely international debt is compared with internal debt. But the point is that such differences arise solely from the institutional framework represented by the separate national monetary and economic institutions. These are not the differences which the currently orthodox debt theory has employed in making the external-internal debt distinction. The fact that the external debt involves a drainage out of the domestic income stream is *not* the reason why it may be more burdensome.

Let us now examine the transfer problem in somewhat more detail and see how it might serve to modify the conclusions reached. A transfer problem is created by the necessity of servicing either the internal or the external debt. In so far as the purchase pattern of those taxed to pay the debt interest differs from that of domestic bond-holders in the first case and from foreigners in the second, some shifting of resources must take place.

In a world with freely fluctuating exchange rates, the international and the internal transfer problem would be substantially identical. For example, if Canada should decide to undertake a large-scale program of public borrowing, it would make little difference whether the bonds were sold in Canada or in the United States. The guiding principle should be that of the market. The comparison with the domestic debt is somewhat more direct if we assume the existence of an international monetary standard with fixed exchange rates and international price flexibility. Here too the international transfer need be no more difficult than the domestic transfer. To be sure, the debtor community will find it necessary to impose deflation in order to surmount the balance-of-payments difficulties created by the necessity of transferring funds abroad. The point to be emphasized here is that the servicing of an internal debt requires that a similarly severe deflationary effect be imposed automatically on the "taxpayer" sector of the domestic economy.[7]

The world in general is not characterized by either freely fluctuating exchange rates or by an international monetary standard. Thus when international loans are actually considered, the "transfer problem" in its classical form may arise. And here the difficulties of making the external transfers may be significantly greater than those involved in making purely internal transfers. This places some premium on the internal as opposed to the external loan. In many cases the borrowing community cannot effectively control the magnitude of the real-income transfer in the external loan case. But it must be emphasized that this is the only valid reason for the making of any sharp conceptual distinction between the two loan forms. This "transfer problem" difference may be of decisive importance, but at the more fundamental level of comparison with which this note is primarily concerned, it represents an

[7] *Cf.* August Lösch, "A New Theory of International Trade," *Internat. Econ. Papers, No. 6* (New York, 1956), pp. 50-65. It is conceptually possible, either under fixed or flexible exchange rates, that extreme values for the elasticities of demand for imports and for exports could prevent any transfer of income abroad consistent with any sort of international equilibrium. Although much has been made of this possibility during recent years, it remains a hypothetical model which has never been observed to occur. But, perhaps more important, it should be noted that similar extreme values for certain coefficients in the various sectors of the domestic economy could produce like results.

adjustment factor only, and it should not be allowed to obscure the underlying criteria for public loan policy.[8]

The above conclusions have been reached on the assumption that the public expenditure program is completely wasteful. The imputation of productive returns to state expenditure will not modify the analysis in any way. This will serve only to determine whether or not future generations will be made better or worse off by the borrowing operation.

The "new" approach to the public debt is directly related to the budgetary aspects of the new economics. This serves to explain, in part, the incompleteness of the approach and its bias against external debt. Discussion of the public debt in recent years has been conducted almost entirely in terms of monetary debt obligations, and little attempt has been made to separate the real and the monetary sides of the debt problem. If the government borrows in a period when there exist unemployed resources, it is clear that the alternative sacrificed is of zero value to the economy in aggregative terms. In this situation, it is evident that no possible justification could be given to a policy of borrowing from external sources. Purely economic criteria would dictate that an internal borrowing operation should be undertaken and that this operation should take the form of borrowing from the banking system, that is, money creation. Such borrowing does not, at its inception, act to reduce the rate of capital formation, and no aggregate burden in the primary sense is involved in the making of future transfers, if indeed positive interest need be paid at all. External debt, on the other hand, does explicitly tie an interest drainage onto the country's future income stream. This is the sort of comparison which seems to have been in the minds of those who were instrumental in shaping the current orthodoxy.[9] Under these conditions the external debt would carry with it a differential burden. But here, as before, it must be observed that the differential pressure is solely due to the higher real borrowing rate necessary with the external loan. It is not attributable to the "externalness" of the debt itself. The real interest cost of an internal debt is the sacrificed rate of internal productivity. Under conditions of deep depression this rate is extremely low regardless of the money rate at which the debt instruments are marketed domestically. We find, therefore, that the more general analysis suggested in this note applies fully even when the full-employment assumption is relaxed. The important principle which emerges is the obvious one that economic criteria should always be employed in choosing the form of the loan; the locational source is not important at the initial level of comparison.

The relative overemphasis on the distinction between internal and external public debt is perhaps not significant as it applies to current policy problems of highly developed countries. In such economies, new issues of public debt

[8] The Colwyn Committee in its Majority Report, chose to emphasize the differences in the difficulties of making domestic and international transfers. This is understandable, but such emphasis has caused the Report's correct statements on the basic similarities between the two debt forms to be almost completely overlooked. See *Report of the Committee on National Debt and Taxation* (London, H. M. Stat. Office, 1927), pp. 26-28.

[9] This is clearly the comparison considered by Wright. See "The Economic Limit and Economic Burden of an Internally Held National Debt," *op. cit.*, pp. 117-18.

will take the internal form. However, the internal-external loan choice may be a real one for some of those countries of the world currently seeking to promote industrialization and rapid economic growth through public investment projects. It seems quite possible that policy-making groups in some of these countries may be led unduly to favor the issue of internal as opposed to external debt. It must of course, be recognized that the "transfer problem" aspects of external debt may be the ruling factor for many underdeveloped economies, but the current orthodoxy of public debt theory which is to be found in almost all of our public finance textbooks may serve only to reinforce established nationalistic prejudices against the creation of foreign indebtedness. This is one area of study where the specialized literature of the last twenty years may provide less assistance to policy-makers than old-fashioned economics.

The public debt analysis presented in this note is of more general applicability than may at first appear. Everything which has been said with reference to the government or community is applicable to the debt problems of the individual or family unit. The individual should also be guided in his borrowing decisions as to "internal" or external loans by basic market criteria. If he "borrows" internally from his 3 per cent savings account to finance the purchase of a new automobile instead of financing externally through a 6 per cent carrying charge, he is making a rational decision. Conversely, if the external rate is lower, recourse to external founds is dictated. And, of course, transfer problem difficulties could also modify these conclusions.

It is not necessary to introduce the "false analogy" or the "we owe it to ourselves" analysis at any point in the fundamental theory. The economist does not need to rely on the fallacy of aggregation to analyze fully the phenomenon of the public debt. This does not suggest that the "false analogy" approach is wholly fallacious. The argument is perhaps useful in demonstrating that the servicing of an internally held public debt does not involve a net drainage from the aggregate income stream, aside from that created by the frictions of transfer. But the danger in the use of this argument lies in the human propensity to jump to the apparently related, but wholly fallacious, conclusion that the servicing of an external debt does involve such a drainage from the *same* income stream.

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Acceleration and Magnification

It has recently been pointed out[1] that it does not follow from the acceleration principle alone that the output of investment-goods industries will fluctuate more widely than the output of general industry. Baumol has shown that while the positing of acceleration and magnification does not lead to contradictions, the latter phenomenon is not implied by the former. Given that net investment varies directly with the rate of growth of net national output, it

[1] W. J. Baumol, "Acceleration Without Magnification," *Am. Econ. Rev.*, June 1956, XLVI, 409-12. The author is much indebted to W. J. Baumol and George Morton for invaluable criticisms of an earlier draft.

is not a necessary consequence that a percentage change in national output will lead to a greater change in the output of investment-goods industries.

Starting from this proposition, in this paper we consider under what circumstances acceleration will lead to magnification. In other words, we wish to discover what additional hypotheses will, together with the acceleration principle, lead to magnification. Similarly, we investigate some conditions under which acceleration will imply diminution of fluctuations in investment. (Diminution is defined as the contrary of magnification.) We limit our considerations to the consumption function (relating consumption to net national income), and the income-capital relation (net national income related to national capital or net investment as a function of the change in net national income). In addition, we restrict ourselves to those situations in which depreciation is a linear function of capital. We are then able to show that if the marginal propensity to consume is less than the average propensity to consume, a necessary condition for diminution is that the ratio of net national income to capital is an increasing function of capital. In other words, magnification is as much a matter of the propensity to consume as of the accelerator.

Gross national income is defined as the output of the investment-goods industries plus consumption. Net national income is equal to gross national income less depreciation, that is, net investment plus consumption. Net investment is the change in the capital stock of the economy. We make the following assumptions: (a) there is a direct relationship between capital and net national income, but there is not necessarily a constant ratio between the two; (b) the marginal propensity to consume with respect to net national income is positive, and the average propensity to consume varies inversely with net national income.[2]

The output of the investment-goods industry is equal to net investment plus depreciation so that magnification of the investment-goods industry is said to occur when a given percentage change in income goes hand in hand with a larger percentage change in net investment plus depreciation. Thus, magnification may be relative either to gross national income or net national income. Diminution is said to occur when a given percentage change in income yields a smaller percentage change in net investment plus depreciation.

Now consider an expression of the form:

$$y = \sum_{i=1}^{n} X_i$$

where all the variables on the right-hand side are increasing functions of y. If there is magnification of at least one X_i relative to y, there must be diminution of at least one of the remainder. Thus, if there is magnification of gross investment relative to gross national income, there must be diminution of consumption relative to gross national income. In other words, the marginal

[2] If the alternative assumption, that the average propensity to consume increases with net national income, is made, a different set of conclusions will follow, notably that there will be magnification of the consumption-goods industry rather than of the investment-goods industry.

propensity to consume with respect to gross national income must be less than the average propensity to consume.

A sufficient condition for this to be the case is that gross national income fluctuates more widely than net national income. (This is because we have assumed magnification of net national income relative to consumption.)

As gross national income is equal to net national income plus depreciation, it follows that depreciation is magnified relative to national income, net or gross. The percentage change in depreciation is equal on the linearity assumption to the ratio of net investment to capital. (The absolute increase in depreciation is equal to a constant times the change in capital: the original level is equal to the same constant times the stock of capital.) Therefore, the sufficient condition for magnification now becomes that the ratio of net investment to capital be greater than the percentage change in net national income. This is equivalent, however, to the condition that the ratio of net national income to capital is a decreasing function of capital.[3] We conclude, therefore, that a sufficient condition for there to be magnification relative to national income, net or gross, is that the income-capital ratio varies inversely with the capital stock.

It may now be seen that magnification is possible even when this condition does not hold, *i.e.*, when the income-capital ratio varies directly with the stock of capital,[4] so that the sufficient condition is not a necessary one. Suppose that net national income fluctuates more widely than gross national income with the result that there is diminution of depreciation relative to national income, net or gross. It is still possible that there will be diminution of consumption relative to gross national income, implying magnification of gross investment relative to gross national income.

Write: Y_g = gross national income

C = consumption.

[3] Write K = capital

Y_n = net national income.

If there is magnification we have

$$\text{for } \frac{dK}{dt} > 0, \qquad \frac{dK}{dt}\cdot\frac{1}{K} > \frac{dY_n}{dt}\cdot\frac{1}{Y_n}$$

$$\text{and for } \frac{dK}{dt} < 0, \qquad \frac{dK}{dt}\cdot\frac{1}{K} < \frac{dY_n}{dt}\cdot\frac{1}{Y_n}.$$

Both of these yield

$$\frac{Y_n}{K} > \frac{dY_n}{dK}.$$

This is equivalent to $d\,\dfrac{\left(\frac{Y_n}{K}\right)}{dK} < 0.$

If the income-capital relation is defined for gross national income, the condition becomes that the ratio of gross national income to capital must diminish, and the argument follows in the same way.

[4] In the simple linear case, $Y_n = aK + b$, this implies b is negative.

For the positive case:

$$\frac{dC}{dt}\cdot\frac{1}{C} < \frac{dY_n}{dt}\cdot\frac{1}{Y_n} \tag{1}$$

$$\frac{dY_g}{dt}\cdot\frac{1}{Y_g} < \frac{dY_n}{dt}\cdot\frac{1}{Y_n} \tag{2}$$

These two inequalities are compatible with either

$$\frac{dC}{dt}\cdot\frac{1}{C} < \frac{dY_g}{dt}\cdot\frac{1}{Y_g} \tag{3.1}$$

$$\text{or } \frac{dY_g}{dt}\cdot\frac{1}{Y_g} < \frac{dC}{dt}\cdot\frac{1}{C}. \tag{3.2}$$

(For the negative case the inequality signs will be reversed yielding the same conclusion.)

Equation (3.1) for the positive case (or with sign reversed for the negative case) implies magnification of gross investment relative to gross national income, and also allows for the possibility that there is magnification relative to net national income. In fact, in this case we have net investment fluctuating more widely than national income, net or gross, and depreciation fluctuating less widely. Consequently, gross investment, which is the sum of net investment and depreciation, may fluctuate more or less widely than national income. Thus, to avoid magnification we require the marginal propensity to consume with respect to gross national income not to be smaller than the average propensity to consume. For diminution of gross investment there must be magnification of consumption relative to gross national income, and for a proportionate variation in gross investment consumption must be proportionate to gross national income. (This last point is of particular interest, for it allows consumption to be a diminishing proportion of net national income while maintaining a constant ratio to gross investment.)

In conclusion, the validity of the acceleration principle as an explanation of magnification in a highly aggregated model has been seen to depend on the validity of certain additional empirical propositions about the economy as a whole. Whether an alternative theory is to be preferred depends to some extent on the acceptability of these propositions, and on what other propositions would be required to support the new theory.

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BOOK REVIEWS

General Economics; Methodology

Economic Institutions and Human Welfare. By JOHN MAURICE CLARK. (New York: Alfred A. Knopf. 1957. Pp. xii, 285, ix. $5.50; text ed. $4.00.)

This volume is a collection of J. M. Clark's essays in the general field of the principles of economic policy and ethics. The essays have been revised and brought up to date, and they make up a volume of remarkable unity, though inevitably of some repetitions. Two essays originated in the early 1940's. The bulk of the book however was written after 1953, so that it is of fairly recent origin. The heart of the book consists of two long essays, one on Economic Welfare in a Free Society, written for the Columbia University Bicentennial in 1954, and the other on the Ethical Basis of Economic Freedom, based on two lectures given for the Calvin K. Kazanjian Foundation in 1955. Of the shorter essays one on the Interpenetration of Politics and Economics is perhaps the most interesting.

It is almost as hard to review a book with which one is in complete sympathy as it is to review one which evokes no sympathetic response. One's reaction degenerates into frequent nods of approval and ejaculations of consent. There is so much ripe wisdom here, such beautifully balanced judgment, with a warm, hopeful concern for the deeper aspects of human welfare balanced by a sharp analytical realism, that one is content simply to enjoy, to savor, and to consent. Throughout these essays runs a plea for a balanced, pragmatic approach to economic institutions, for what the author calls "constructive serviceability." Let us have private enterprise where that is most effective, public enterprise where *that* is most effective, governmental and legal frameworks to prevent unreasonable fluctuations or intolerable inequalities and let us always remember that the fundamental object of the economic system is not the production of commodities, which are all merely intermediate goods, but of rich and interesting human lives. Let us beware of ideologies, whether of rigid *laissez-faire* or of doctrinaire socialism; let us treasure the freedom of the individual, but not be afraid to limit it by law in the interest of greater freedom for all, and let us inculcate the habit of responsible behavior, without which freedom inevitably destroys itself.

It is impossible to convey the richness of quality of a work like this in a brief review. There is something peculiarly American in the thought of J. M. Clark: it stems from the sweet reasonableness of Penn and of Emerson, from the pragmatism of William James, from what might be called the Gentle Tradition in American life. It stands over against the harshness and cruelty both of Manchester and of Marx, with their confident solutions and roughshod ideologies. To some extent too it stands over against the bright young world of the econometricians and operations researchers, though this is not brought out in these essays. There is always a danger of course that the gentle may de-

generate into the genteel without some stiffening from the tough-minded, and some critics might feel that Clark's thought is a little too "tender"—that it does not wrestle enough with the difficult quantitative questions of how much and just when! Nevertheless in an age that is too tough, too cruel, and too brittle, long on knowledge and short on wisdom, there is an important place for a gentle, kindly, and wise approach to the problem of the economic ideal.

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25 Economic Essays in Honour of Erik Lindahl 21 November 1956. (Stockholm: Ekonomisk Tidskrift. 1956. Pp. 412. SKr. 20.)

Honoring the most outstanding Swedish economist of his generation, twenty-five economists have contributed these essays on a wide variety of subjects and in a wide variety of languages (11 essays in English, 10 in Swedish, two in Norwegian, one in Danish, and one in German). While any Scandinavian freshman would master all five languages, a few of the best essays will remain hidden to most Anglo-Saxon colleagues. The essays are arranged in the alphabetical order of the names of authors, and it might be helpful for reviewing purposes to reassemble them in the following ten groups according to the fields they cover.

To price and allocation theory Gunnar Lindgren contributes an able attempt (in Swedish) at unification of the theory of decision-making. The opening paragraph of Samuelson's *Foundations* is quoted and sets the tone of the entire essay. Gustaf Åkerman applies (in English) the marginal-productivity theory to the optimization of an agricultural product-mix under changing wage rates.

To aggregate income and employment theory there are six contributions. Ragnar Bentzel submits a lucid paper (in Swedish) on the aggregation of production functions. Trygve Haavelmo has an equally lucid paper (in Norwegian) on equations versus identities in macroeconomic theory. It is a pity that this paper is not in English; it is still badly needed in our profession! J. R. Hicks, in his paper on methods of dynamic analysis presents, among other things, a masterly evaluation of Keynes. Ralph Turvey discovers some hitherto unnoticed properties of the transaction demand for money. Alf Johansson examines (in Swedish) residential construction as an instrument of public policy, and for the 'fifties finds it much less suitable than it was in the 'thirties. Johan Åkerman contributes a paper (in English) on the relationship between microeconomics and macroeconomics in the analysis of the cumulative process. The targets for attack in this paper are the Keynesians and the Stockholmers alike.

Three papers are devoted to the problems of inflation. Bent Hansen and Gösta Rehn contribute the largest essay (51 pages) of the entire collection. The paper undertakes a theoretical and statistical analysis (in English) of the so-called "wage drift" in postwar Sweden. Sweden has had a phenomenal rise in money wages—10 per cent per annum for the postwar period. "Wage drift" refers to the fact that the actual rate of increase of hourly earnings in almost all branches of manufacturing industry has been in excess of what was agreed upon in the annual contracts—a sort of "grey" market! Hansen and Rehn's

findings are that "wage drift" is highly influenced by good old demand and supply in the labor markets. The development of excess profit in the enterprises seems to play a minor role, and the findings give no support to the official union explanation that wage drift is an automatic consequence of the increase of productivity under piece-work earnings. Carsten Welinder writes (in Swedish) on the sensitivity of tax revenues to inflation, and G. Westin Silverstolpe (in Swedish) discusses farm leases under inflation.

There is one paper on the theory of fiscal policy, *i.e.*, Erich Schneider's penetrating analysis (in German) of the balanced-budget multiplier. The paper is an interesting further development and qualification of Baumol and Peston's note in this *Review* (March, 1955).

Ingvar Svennilsson contributes a paper (in English) on the theory of growth with an application to a forecast of Swedish capital stock and its composition by 1975.

There are three papers on computing and statistical methods. Ragnar Frisch (in English) starts out with some small talk about digital computers but abruptly turns very technical in his discussion of computation problems in macroeconomic linear-programming models like his own for Norway. Karin Kock discusses (in Swedish) the problem of adjusting data collection to the needs of forecasting. Olof Lindahl presents some impressive results (in English) of a Kuznets-like (and Social Science Research Council-supported) estimate of the Swedish gross national product 1861-1951.

To international economics and area studies there are two contributions. Börje Kragh analyzes (in Swedish) three hyperinflation-ridden economies, *i.e.*, Bolivia, Chile, and Paraguay. Erik Lundberg contributes (in English) a spirited comparison between the stability problem in the Australian and the Swedish economies. Like Lindahl, Lundberg was invited to Australia to compare notes on the inflationary pressure in a rapidly growing economy. The ratio of gross investment to GNP in the postwar period has been 30 and 25 per cent for Sweden and Australia respectively.

On international administration there are papers by the two members of the Stockholm School who have become top international civil servants. Dag Hammarskjöld examines (in English) the touchy subject of self-determination and economic aid to underdeveloped economies. His point of departure is the observation that nations emerging from long foreign rule generally lack an independent administrative tradition and a social structure within which it is easy to build up a class of national administrators. Hammarskjöld welcomes Lester Pearson's proposal for an international professional and technical civil service of the United Nations with experts especially trained for work in the underdeveloped areas. Gunnar Myrdal (also in English) presents a progress report on the research work done in the Economic Commission for Europe.

To the history of thought and method there are four contributions. The best is Erik Dahmen's paper (in Swedish) on the history of monetary theory. Here is a brilliant illumination of the idea that new theories reflect the rise of new institutions. One wishes this paper had been in English. More on the technical side, Karl-Gustav Landgren examines (in Swedish) the history of Wicksell's application of Euler's theorem to the theory of the distributive shares. F.

Zeuthen offers a witty essay (in Danish) on computer and man; and Johan Vogt submits a very personal account (in Norwegian) of well-known as well as lesser men he has met in life. There was the Norwegian heretic Dybwad-Brochmann, there was the Danish theorist and conservative reformer L. V. Birck, and above all there was Silvio Gesell. Even Quisling is noticed in passing. Like many of his generation Johan Vogt is a former Marxist, and his account of this particular phase of his life is most human and entertaining.

Finally, there is one contribution to economic history. Hugo Pipping examines (in Swedish) the resumption of silver species-payments by the Bank of Finland after the monetary reform of 1840 with special emphasis on the effects upon the Swedish silver standard.

As is usually the case in such birthday volumes, the quality of the contributions is not even. As a whole, however, this volume maintains traditionally high Scandinavian standards.

HANS BREMS

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The Dynamics of the American Economy. By CHARLES H. HESSION, S. M. MILLER and CURWEN STODDART. (New York: Alfred A. Knopf. 1956. Pp. xvii, 504. $5.75.)

This textbook will probably best serve the purposes of an introductory course in social science rather than the usual economics course. According to its authors it "attempts to offer a fresh view of our economy and its contemporary problems in terms of a behavioral approach" (p. vii). This approach is further stated to be a "holistic one, influenced by institutionalism, infused with the newer developments of social science and directed by a concern with economic and social welfare" (p. 47).

The result is a textbook which in organization and content is unique. The book may best be classified as economic sociology with accent on economic as an adjective, since so little of conventional economic analysis is present. Of the six major sections into which the book is divided Sections II and III on "Business as a System of Power and Social Influence" and "Labor, Its Economic Role and Way of Life" constitute over half of the total material. These sections are concerned chiefly with economic evolution, the distribution of power in society, the changing social values of business and labor in American society and the impact of these values on the lives of individuals. Modern economics, in the words of the authors, "must concern itself with the quality of our lives as producers and consumers as well as with the quantity of goods and services our economy produces" (p. viii). Or as the authors also express it, "an economic system produces not only goods, but men" (p. 60).

The same sociological approach is pursued in the fourth section on "Competing Interest Groups." This part deals with such other economic groups as the farmers, small business men, and white collar and professional groups. It also includes an interesting chapter on the problem of the social control of conflicting interest groups. This section along with the two previous ones may in many ways be viewed as an extension of the type of popular industrial sociology writing that has appeared in *Fortune* over the past two decades. In fact,

Fortune articles are cited 26 times. The material is further enlivened by interesting case studies of the history of the U.S. Steel Corporation, the impact of conformity in the International Business Machines organization (a reproduction of an early *Fortune* article), the settlement of a labor dispute, and a study of the changed status of the corner druggist.

The last two sections on "National Income, Its Growth, Fluctuations and Possibilities" and "Economic Progress and Human Welfare" are somewhat closer to the material of a conventional economics textbook. However, since no attention at all is given to money and banking the discussion of economic instability is perforce quite weak and very largely descriptive.

A book review is not the place to debate what the methodology of economics should be or what the content of an elementary economics course should be. Obviously, the authors of this textbook hold views on these matters at decided variance from those held by a large part of the economics profession. Judged wholly in terms of the objectives the authors have set for themselves, their textbook is a commendable piece of work. It is well organized and interestingly written and it is certain to be welcomed by those who seek to make out of economics a much broader subject than the conventional view of economics as a science permits.

A. MORGNER

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State University of Iowa, Bureau of Business and Economic Research, publications:

Major Issues in Economic Education. By LEWIS E. WAGNER. Studies in Economic Education series. 1955. Pp. v, 31. $1.00.

Testing Economic Knowledge and Attitudes. By LEWIS E. WAGNER. Studies in Economic Education series. 1955. Pp. v, 21. Out of Print.

What are Economic Problems? By LEWIS E. WAGNER. Primer of Economics series. 1955. Pp. vi, 19. 50 c.

Measuring the Performance of the Economy. By LEWIS E. WAGNER. Primer of Economics series. 1956. Pp. vii, 39. 50 c.

Iowa Business Digest. Special Issue on Economic Education. 1957. Pp. 46. Free.

It would be almost as difficult to find anyone who is against economic education as it would be to find someone who is against virtue. But to some economic education means consumer economics, and perhaps particularly personal finance; to others it means "community" economics, closely akin to high school courses in civics; and to many economic education smacks of propaganda. But however the scope of economics be conceived, only a small fraction of the population is currently being exposed to formal work in the discipline. It is estimated that only 20 per cent of those entering high school go to college, and of these less than a quarter take work in economics. Less than 5 per cent of the high school students take courses in economics, and the percentage has been decreasing in recent years.

If it be granted that economic education should be more widely diffused,

it seems clear that there must be a considerable degree of cooperation between economists and public school administrators and teachers. Considerable work of this sort has been going on in recent years, largely under the sponsorship of the Joint Council on Economic Education. Enlisting the enthusiastic support of economists has not, however, been easy. A joint project carried on with a professor of education does not seem to carry the professional distinction that one done with the assistance of a professor of mathematics would provide. The research that needs to be done in this area gives little promise of professional recognition since it is the sort of thing that any patient man could do. The busy economist might be persuaded to consult with high school teachers of economics, and he might even be prevailed upon to supply text materials, but, when he is asked to cooperate with those trying to impart some degree of economic education at the elementary school level, he is likely to lose all interest and wash his hands of the whole matter.

In spite of the serious difficulties considerable progress has been made in several parts of the country in establishing programs in economic education. Numerous workshops under the direction of the Joint Council on Economic Education are held each summer, and the American Economic Association has recently established a standing Committee on Economic Education. Of all the programs now in operation one of the most successful has been that of the Iowa Council on Economic Education. It has issued two series of publications: Studies in Economic Education, which are concerned with selected problems in the area, and the Primer of Economics, which is written primarily for high school seniors and college freshmen studying courses in economics and related subjects. The Winter 1957 issue of the *Iowa Business Digest* is devoted exclusively to articles on economic education. The topics included in these publications are diverse, but the level of competence of the authors is uniformly high and the economics is respectable. Anyone contemplating work in the area of economic education would do well to begin with the publications of the Iowa Council.

Clark Lee Allen

North Carolina State College

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

Theoretical Welfare Economics. By J. de V. Graaff. (New York: Cambridge University Press. 1957. Pp. x, 178. $4.00.)

In a short space Mr. de V. Graaff deals cogently with most issues in contemporary welfare economic theory. He systematically develops the corpus of the theory, devoting especial attention throughout to the assumptions that must be fulfilled in order to deduce the familiar marginal equivalences of the general optimum. This is followed by an application of the theory to foreign trade, the pricing of governmental services, and welfare comparisons over time.

The work is in the tradition of Bergson and Samuelson. Given available resources and the current state of technology we can derive the society's transformation function. Given consumer tastes and the group consensus about

desirability of alternative distributions of income, we can formulate the society's welfare function, and from this derive community indifference functions. Juxtaposition of social transformation and social indifference considerations enables us to deduce conditions for maximum welfare. Such conditions for the class of "Paretian social welfare functions" (functions restricted only in the property that social welfare rises or falls as the welfare of any one man rises or falls, the welfare of all others remaining constant), are, *under certain assumptions*, the familiar marginal equivalences of the Paretian general optimum, for which no interpersonal comparisons of utility are necessary. The broadest of these is that the marginal social rate of transformation should equal the marginal social rate of indifference (or, in partial form, that marginal cost should equal price in all lines of production).

There are a number of distinctive features in Graaff's presentation. First, he is unwilling to rule out the possibility of increasing production returns to scale. Second, in the spirit of Duesenberry and Baumol, he stresses the empirical importance of external economies and diseconomies in production and especially consumption. Third, he considers the possibility that the society's transformation function may depend not only on the supply of inputs, but on the distribution of wealth to the owners of the inputs. Thus, more food to undernourished workers at the expense of the well-fed may increase total production.

The effect of these considerations is substantially to complicate the conditions for the general optimum. The familiar ones are no longer necessary conditions. Competition, for example, no longer leads to the optimum. Ad valorem or lump-sum taxes may be adequate correctives under certain circumstances. Under other circumstances—for example, when there are significant external economies and diseconomies in consumption—conditions for the general optimum cannot be formulated without recourse to more concretely restricted social welfare functions: interpersonal comparisons of utility are required.

There are further complications. Divisibility is ordinarily assumed. Substantial indivisibilities may make marginal rates of transformation indeterminate and, where consumption is concerned, involve *finite* shifts of expenditure which also necessitate making interpersonal comparisons of utility. Even more serious, if we desire that our welfare function be based on individual preferences (instead of being dictatorial), it may not be possible to formulate, since it must reflect value judgments about problem areas where strong consensus is unlikely. First is the question of the exact population and time period involved. Second, the composition of capital remaining at the end of the horizon must be settled. Third, there is uncertainty: therefore disagreement about the magnitude of relevant variables; disagreement about how to allow for uncertainty; and a further complication of the welfare function by making the inclusion of anticipations (as a function of prices) desirable.

Graaff's conclusions despair of a practical welfare economics. The marginal cost-price rule, the compensation principle, the size-distribution distinction in national income (hence aggregate indices), have little prescriptive merit. Moreover, it is unlikely that we can empirically discover group value-consensus extensive enough to support concrete recommendations. The only useful func-

tion for the economist is to make available positive, not prescriptive, information.

Graaff's is a familiar outcome. Up to a point there can be no quarrel with it. The deserved inclusion of the above complexities leaves little that is recognizable or convenient of the welfare rules. But the practical advice to drop welfare economics in toto may be too strong. If we are willing to recognize that individuals themselves have no such precise complete preference fields as sometimes attributed to them, that indeed, it is almost always the even fuzzier ("group") preferences of households rather than individuals that "count" on the market, we may be less shocked by the relative imprecision of "social preferences." The practical tolerability of varying degrees of proximateness may be well worth studying.

Furthermore, Graaff's position does not account adequately for the complexity of individual preferences. Thus, in explaining why persons typically distinguish between the size and distribution of income in making intertemporal comparisons, he too facilely assumes dictatorial individual preferences—assertedly, on grounds that such comparisons do not involve choices. Others are not being committed to anything so their preferences need not "count." But intertemporal comparisons do involve choice, since they provide feedback by which policies are evaluated. The outcome of any such comparison influences future policy choices. Graaff takes his unpromising position here because he neglects the possibility that individual preferences may be double-layered: on one level, the individual's predilections about total distributions of income; on another, his willingness to commit his predilections, *along with others'*, to ultimate test via the society's legitimate decision-making processes. Indeed, something like this seems to underly Graaff's faith in positive economics helping others to make informed judgments: seeing the economist as willing that the legitimate resultant of such judgments should express the group choice.

Graaff's position stands up well, on the other hand, against the alternative (adopted by Little and others) that "saves" welfare theory by asserting that interpersonal comparisons of utility are matters of fact rather than value judgments, and therefore in principle capable of noncontroversial demonstration. Proponents of such a position have a difficult task of persuasion.

Graaff has written a very useful, therapeutic volume. It neatly crystallizes our hard-won results and then shocks us into perpetual vigilance by showing us the artificiality of the world for which we earned them.

JEROME ROTHENBERG

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Knut Wicksell—rebell i det nya riket (Knut Wicksell—A Rebel in the New Nation.) By TORSTEN GÅRDLUND. (Stockholm: Bonniers. F. 1956. Pp. 412. SKr. 39.)

This book is a definitive and excellent biography of Knut Wicksell. It should be of great interest to those who are acquainted with only his economic works. This reviewer has learned that it will soon be available in English translation.

Gårdlund's study shows clearly that Wicksell was not only one of the great-

est economists of his generation, but also an agitating reformer of considerable power. Most people in his own country knew him best for his indefatigable social reform propaganda and his sensational appearances as a public speaker on the unpopular side of many questions. He became a marked man for his efforts in behalf of neo-Malthusian principles of birth control, companionate marriage, and equality for women. He also offended many of his contemporaries by the way in which he expressed his opposition to the state church and its religion, and to Sweden's defense preparations. He worked ardently for parliamentary reform, expansion of the franchise, protection of freedom of expression, and for measures (especially in education) designed to equalize economic opportunities and reduce inequalities in the distribution of wealth. Many came to regard him as a social rebel who, as Gårdlund puts it, "deliberately chose the shock approach as his mode of participation in public life" (p. 276). Relatively few knew him in his other character, a cool-headed, creative economist endowed with analytic powers of the highest order.

This may be the reason Gårdlund devotes only three of fourteen chapters of his book to Wicksell's contributions to economics. Yet this may be appropriate. Wicksell's work in economic theory is now widely known and has received considerable discussion in the literature. Also, to attempt a thorough evaluation of his scientific work would have disrupted the continuity which is desirable in a biography.

As Gårdlund relates it, Knut Wicksell was born in Stockholm in 1851, the youngest in a family of five children. His childhood was saddened by the death of his mother when he was six years old and the death of his father when he was fifteen. His father, Johan, a man of humble origin, was a grocer and produce dealer who gradually built up a modest fortune based on ownership of working-class apartments in Stockholm. When he died he left his children the means to obtain a secondary education and a start toward professional careers.

Wicksell went to Uppsala University in 1869, where he performed brilliantly, completing a degree in mathematics and related subjects in five semesters, about half the time this normally takes. But he was troubled by religious scruples and later by doubts as to his ability to be creative in mathematics. While he pursued graduate work in this field, his energies were increasingly deflected into literary, and student-corps leadership activities. Eventually, in 1885, he earned a graduate degree (*fil. lic.*), a small step short of a doctorate, in mathematics and physics, but after that he went abroad and for a period of five years concentrated on economics.

What determined his change of career was a popular lecture he gave in 1880 on the means of preventing alcoholism. It ended in a neo-Malthusian plea for early marriages, with children limited to two or three by voluntary application of contraceptive birth control. This caused him much adverse publicity and forced him, in defense, to devote his time to studies of the population question and related social problems.

Toward the end of his foreign studies (in England, Germany, Austria, and France), he entered into a "conscience" or companionate marriage with a Norwegian lady, Anna Bugge, who bore him two sons and remained his loyal

wife and companion for life. Since his marriage was a private agreement, without civil or church sanction, it added to his notoriety and to the refusals of academic positions he hoped for on his return to Sweden. In 1895 he completed his doctorate in economics at Uppsala only to find that he needed an additional degree in jurisprudence to qualify for a professorship. This he completed after another two years of intensive study, 1897-99, whereupon he was appointed a docent in economics and fiscal law. Next year, 1900, he became an assistant professor of these subjects at Lund University, where, after many trials and tribulations, in 1902 he achieved a tenure position, and a full professorship in 1904. He finished his short academic career at Lund in 1916. For most of the remainder of his life as a professor emeritus he participated in the monetary and tax investigations called for by the Parliament in the period 1917-23.

The crucial years in his life were the decade after 1890, during which he spent much energy on propaganda for neo-Malthusian principles. Up to 1886 he had financed his studies from his father's estate and by some teaching and writing of his own. Most of his foreign studies were supported by grants from a Swedish foundation. But when he returned to Sweden in 1890 with a young family on his hands, he found most avenues of employment, academic and otherwise, closed to him. So he eked out a meagre subsistence by making popular lecture tours in the Scandinavian countries, speaking for the reforms indicated above. In addition he served as a correspondent for a number of Swedish, Norwegian, and Finnish papers.

At one time, in the mid-1890's, he was on the verge of settling on a career as an obscure journalist. In his pressing circumstances he was sorely tempted to become the editor of a small Swedish daily or London correspondent of a larger paper, when these opportunities presented themselves. But he persisted in his poverty, combining serious scientific work in economics with propagandistic activities. It should be remembered that it was in these troubled years that he earned his doctorate and wrote his first three major works on economics, *Value, Capital, and Rent* (1893), *Finanztheoretische Untersuchungen* (1896), and *Interest and Prices* (1898).

What added to his many difficulties was that he attacked what he conceived as social injustice in its various forms vigorously, sometimes tactlessly, without caring about personal consequences. At crucial times, such as when his appointment at Lund was under consideration, he felt it a matter of duty to speak up for the truth, mostly unpopular truths, although he knew that the adverse publicity which almost always resulted from his appearances would jeopardize his career and solidify the opposition of administrators and conservative colleagues alike to his appointment, which was made nonetheless.

Because of his tendency to be the gadfly, the rebel, on the one hand, and the calm, objective social scientist on the other, he has been interpreted as a man of split personality. Gårdlund shares this perspective to some extent but finds him to be more like the hero, Brand, in one of Ibsen's early dramatic poems. As Gårdlund puts it:

> We have no clear evidence that Brand served as the model he chose for his life. Yet his life was moulded according to this character of Ibsen's.

> Like Brand he suffered "intimations of lack of harmony between life as it is and as it ought to be." Just as Brand, he rejected all compromise with the existing order of things, and he always felt himself facing choices which must lead either to victory or to defeat and castigation. Like Brand he placed the highest moral requirements on himself but also asked for heavy sacrifices from others. (P. 372.)

Although many of the reforms he had fought for in younger days had been achieved or were on their way to realization, toward the end of his life Wicksell was a lonely and somewhat pathetic figure. He resented old age and the debilities it brings. He died rather suddenly in May 1926 from an internal ailment complicated by pneumonia.

In this reviewer's opinion Gårdlund's biography, especially in translated form, will be a valuable addition to the too scant literature available on the lives of the world's great economists.

CARL G. UHR

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Volkswirtschaftliche Regelungsvorgänge im Vergleich zu Regelungsvorgängen der Technik. Edited by HERBERT GEYER and WINFRIED OPPELT. (Munich: R. Oldenbourg. 1957. Pp. 143. DM 16,80.)

In March 1955, the Control Systems Division of the Association of German Engineers (VDI-VDE) held a meeting in Essen that was entirely devoted to *Economic Control Processes in Comparison with Technological Control Processes.* This book, under the corresponding title, is an (apparently incomplete) collection of papers presented there.

Winfried Oppelt, a well-known author on servomechanism theory, gives a limpid introduction to the essentials of feedback amplifier design, exemplified by the thermostat, automatic blood pressure control in mammals, and a simple hog-cycle cobweb. He also explains proportional, integral, and differential stabilization policies and the Nyquist-diagram technique—material that the English-reading economist is likely to know from A. W. Phillips' articles in the *Economic Journal* of June 1954 and June 1957, and from Arnold Tustin's *Mechanism of Economic Systems* (London, 1953).

Herbert Geyer admittedly derives from the same sources and gives, in servomechanism language, a plausible reinterpretation of some macroeconomic theories from François Quesnay to J. M. Keynes. Beside a rudimentary discussion of dynamic stability conditions, there is an intelligent reconstruction of David Ricardo's theory.

Definitely more than derivative is a contribution by C. Föhl, a one-time mechanical control-system engineer whose *Geldschöpfung und Wirtschaftskreislauf* (Leipzig, 1937) is recognized to have paralleled, if not preceded, some Keynesian innovations. Resuming his old theme, the dynamic analysis of real and money circular flows, Föhl is quite modest about his original contribution and very generous to other innovators of the 'thirties like Ragnar Frisch and Michal Kalecki. In a frankly eclectic fashion, he tries to synthesize, with the help of "information flux designs," virtually all better-known constituents into

a workable "general" model of the economy. Föhl's familiarity with the pertinent non-German literature and his technical facility are impressive.

A brief survey of the mathematically more involved tools, such as the Laplace transform, for tackling servomechanism problems quantitatively is given by H. Tischner.

An econometric linear model of (some aspects of) the German economy *ca.* 1948-1951 is worked out by Rudolf Henn. It is somewhat marred by an infelicitous expository apparatus and is too aggregative to "sell" the main message of the book.

Karl Förstner discusses continuous and discrete models—that is, differential and difference equations—and develops a dynamic monopoly model that is serious, if conventional, mathematical economics.

Klaus-Jürgen Lesemann, who is affiliated with the computation center of the Technische Hochschule at Darmstadt, discusses the solution of economic control problems with the help of analogue and digital computers, their main features and comparative advantages. Also, the inventory-oscillation model of N. F. Morehouse, R. H. Strotz, and S. J. Horwitz (*Econometrica,* October 1950) is adapted as an illustration.

This was a truly interdisciplinary effort and a successful one. Indeed, the fact that the meeting was sponsored by engineers, and the quality of the outcome, put professional economic organizations to shame. One has to know the German economic scene with its prevailing antipathy to modern tools in order to appreciate the merits of this book. If in recent years a comparably sophisticated and sound contribution to macroeconomic dynamics has appeared in Germany, I should like to see it.

EBERHARD M. FELS

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Introduction to Keynesian Dynamics. By KENNETH K. KURIHARA. (New York: Columbia University Press. 1956. Pp. 222. $4.50.)

This volume presents an exposition of the short-term and long-term aspects of modern aggregative theory. The examination and discussion of formal models is the heart of the work; there is, consequently, heavy reliance on diagrammatic and, especially, on algebraic techniques. The algebra is elementary and should pose no problems of comprehension to graduate students. Professor Kurihara focuses sharply on analytical material: empirical issues and policy instruments are deliberately given scant coverage.

Considerable stress is placed on the underlying unity of the theories of fluctuation and growth. The common foundation of both parts of macroeconomics consists of the basic building blocks of Keynesian economics, which are presented in Part I. There, the reader is led through a review of Keynesian statics in successive chapters devoted to the consumption function, marginal efficiency of capital, and liquidity preference, respectively. Part I concludes with a chapter called "The Savings-Investment Adjusting Function," which provides a sturdy bridge to carry the reader into the discussion of dynamics. The analysis of Part I is thoroughly competent; the chief complaint is that it

displays excessive devotion to chapter and verse of *The General Theory*. While the author refers occasionally to recent developments in the literature, his Keynesian statics is distinctly of 1936 vintage. The omissions include material that seems particularly germane to a work which endeavors to relate cyclical and secular phenomena. For example, there is no discussion of the theoretical explorations designed to account for the paradoxical long-run constancy of the average propensity to consume.

Part II of the book is a discussion of short-run fluctuations. An outstanding feature of this section is its curious treatment of the acceleration principle. The accelerator equation is presented (p. 102) as:

$$I_t = b(Y_{t-1} - Y_0) + I_0,$$

where the subscript 0 refers to a given base period. Whatever its appearance, this equation posits level-induced—and not change-induced—investment. In fact, as the author recognizes, it introduces the "marginal propensity to invest," rather than the usual accelerator. One need not love the acceleration principle, but one should examine it in a work of this kind. Kurihara's sole recognition of this responsibility is contained in a brief passage (p. 107) where he obliquely criticizes an alternative formulation of the accelerator for implying rigidity in the ratio of capital to labor. Given the author's views, it is difficult to understand why he should wish to confer the name "accelerator" on an imposter with a striking algebraic resemblance to the usual concept. A straightforward exposition and critique of the conventional accelerator would have been preferable.

The fuzziness concerning levels and changes extends even to the notation of Part II. The symbol, ΔX, refers both to changes in the variable from the preceding period (*i.e.*, $X_t - X_{t-1}$) and to deviations of the variable from its base-period level (*i.e.*, $X_t - X_0$). This is, indeed, confusing notation: the author himself is led astray and presents incorrect numerical entries in several columns of both Tables 7 and 8 (pp. 100, 105).

Through much of the chapter on the dynamics of inflation, the saving and investment functions are specified in money terms. At last, the author entertains the possibility that the appropriate relationships are those in real terms; and he notes the explosive implications of such a system (p. 135). However, he then defends the convergent "money illusion" system (p. 138), invoking the support of income redistribution. The argument is unconvincing—as it must be, since this issue cannot be settled on a priori grounds. If the author employed the "money illusion" functions consistently, he would be committed to espouse wage and price flexibility as an antideflationary weapon. However, when this issue is discussed in the concluding chapter of Part II, the relationships are presented throughout in real terms. The exposition of the Pigou effect in that chapter is clouded by the author's eagerness to attack the thesis.

Part III, which deals with economic growth, contains some effective discussion of Harrod-Domar models and their implications. On the other hand, it has some questionable features. The views are markedly stagnationist: at times, growth of productive capacity in a highly developed economy is portrayed as though it were an unfortunate phenomenon whose prime consequence is to complicate the task of maintaining full employment (*cf.* pp. 185-90). In

another display of stagnationist leanings, the stability of an economy is carelessly equated to its immunity from depression (pp. 173-76). Also, the views on production theory stand in sharp contrast to those expressed earlier in the work. While the assumption of fixed proportions among inputs was treated as anathema in Part II, it is readily accepted (p. 180) and employed throughout Part III. In fact, there is excessive concern with rigidity, immobility, and maladjustments in the structure of production (pp. 201-02, 206, 209); the potential role of the price mechanism in alleviating these problems is nowhere considered.

All in all, Kurihara's work is well conceived and well organized. However, as indicated above, the details of the book are not equally satisfactory. Many sections seem either excessively (and, on occasion, inconsistently) doctrinaire or else just not sufficiently careful and precise.

Arthur M. Okun

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Economic History; Economic Development; National Economies

Essays in Canadian Economic History. By Harold A. Innis. Edited by Mary Quayle Innis. (Toronto: University of Toronto Press. 1956. Pp. viii, 418. $8.50.)

If Canada's economic history has on the whole been better written than that of any other new country, this is mainly because of the work and influence of Harold A. Innis. The American Economic Association recognized this contribution in electing him to its presidency, and its members will be grateful to Mrs. Innis and to the University of Toronto for making available this collection of his essays.

The scope of the volume is wider than its title; and the papers, presented chronologically, cover the span from 1929 to 1948. One of the earliest interprets the work of Thorstein Veblen in terms of the struggle of "the practical wheat farmer" against the metropolitan economy as well as the rise of the machine industry. The final essay is a Canadian's warning to a British audience against American imperalism. The author was no less severe with many of the policies of his own country and was uncompromising in his defence of the dignity and integrity of the economist's profession against what he considered the corruptions of political involvement. Ghost-writing scholars were, he said, "stuffing the shirts of their betters"; and he told a political party gathering that the economist's assumption "that he can compete with demagogues . . . has proved to be palpably wrong, except to those economists who have become demagogues themselves in the competitive process."

"A philosophy applicable to the economic history of new countries" is laid down in the first paper and followed consistently throughout. Like Guy Stevens Callender, who described the dominance of external commerce as the essential characteristic of a colonial economy, Innis declared that "the development of a new country means above all things continued relations, especially trade, with the old country." For Canada this meant, at the beginning and throughout much of the later development, the production of staple products for the Euro-

pean and primarily the British market. Innis accordingly became the historian of Canada as a staple-producing economy. In analyzing the succession of export trades—fish, fir, timber and in later decades gold, wheat, paper and pulp, and the baser minerals—he handled with sure touch the factors of resource, technique and market. Fur as a product of high value in relation to weight and bulk could be carried upstream and over portages. White pine could be floated, thanks to its low specific gravity, but only downstream on the major rivers. The uneven weights of inbound and outbound shipments, leading to what Innis called "unused capacity," had unexpected consequences. Cargoes of fur were lighter than the goods needed to provision the trade, and the heavier loads had to be forced upstream on the St. Lawrence and the Ottawa. The discrepancy led to early efforts to promote agricultural settlement. Timber on the other hand was large in bulk and low in value, and in this case the discrepancy had the important effect of encouraging immigration. "Large numbers of settlers were brought out in preference to ballast." This suggestive analysis of "unused capacity as a factor in . . . economic history" would find numerous applications in the United States—and a recent illustration in the building of New York's East Side Drive on fill from the rubble of war-bombed Bristol!

The different staples had varying effects on the structure of economic and political organization. Fur was a centralizing force. But when Innis turned from his studies of the fur trade and of the Canadian Pacific Railway, which also was octopoid and monopolistic, to the fisheries of the Maritimes, Newfoundland and New England, he found a very different situation. Here the relatively small size of the ships, the modest capital requirements, the large number of ports, and the variety of nations and authorities, fostered greater reliance on individual initiative and led to decentralization and greater democracy.

All the staple trades shared the common element, in Innis' view, of great vulnerability to depression and other changes in external markets. Moreover, the shifts from one staple to another exposed Canadian development to marked irregularity and recurrent difficulties of adjustment. Partly because of these circumstances and partly as a means of defence against economic absorption by the United States, governmental authorities in Canada were particularly prone to economic intervention. Demands for such action led to constitutional changes, and Innis interpreted the union of Upper and Lower Canada primarily as a means for financing improvements in the St. Lawrence system to counter New York's success with the Erie Canal, and confederation itself as largely a fiscal device for the support of a transcontinental railway.

The main lines of this contribution were filled in by 1937. A number of the later papers are prefaces to the books of other scholars. Innis' own work presents penetrating comments, but not major research, on "the new industrialism in the hydro-electric power, mining and pulp-and-paper areas" and on the vastly increased importance of the relations between the Canadian and American economies. In one of the later essays, the successive gold-rushes in the various Pacific areas from California to Ballarat to the Yukon, treated under the title of "Liquidity Preference," provide the starting point for an extraordinary account of the current of world trade and development. In this the

impact of Argentine beef on the market for New Zealand meat and in turn of New Zealand butter on the Canadian dairy industry are examined with the same zest with which the author's early work explored the relations of Canadian fish and fur to Virginia tobacco, Caribbean sugar and the treasure of Mexico and Peru. Both demonstrate the richness of the endowment which he might have brought to more extended ventures in comparative economic history.

In filling his role as "the father of Canadian economic history," Innis combined, to a quite unusual degree, the functions of painstaking original research and of illuminating generalization. His books give full place to both. They will not be superseded by the present volume, but the best of its essays present in very brief compass the conclusions won by years of patient and productive labor.

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Science and Economic Development: New Patterns of Living. By RICHARD L. MEIER. (New York: John Wiley & Sons and the Technology Press of Massachusetts Institute of Technology. 1956. Pp. ix, 266. $6.00.)

This is a remarkable book: a weighty contribution to the theoretic solution of the excruciating dilemma facing the majority of mankind who inhabit the underdeveloped countries. Dr. Meier, a natural scientist, approaches his task in the true spirit of daring scientific inquiry. Realizing that "the hardship that much of the world feels today can be attributed to a large extent to the inability to use resources to build production to meet the growing needs" (p. 26), he avoids the pitfall of taking for granted the conditions that give rise to that inability and of thus bogging down within the narrow confines of what is. Yet, although allowing his imagination to transcend what is "natural" and sanctified by tradition, he escapes the danger of being carried away into the realm of science fiction and of losing relation to the real world. Stating with admirable clarity the available possibilities for overcoming the existing misery, he lives up to the basic injunction upon all historically relevant and forward-looking scientific thought which demands "not only the establishment of risks and trends, but also the formulation of new utopias that are *consonant with the resources at the disposal of society*" (p. 226; italics added).

It is to the specification of such "realistic utopias," to the study not only of what exists but also of what is attainable that the book is primarily directed. Visualizing concretely the goals of economic development efforts, the author elaborates a global balance sheet of requirements and possibilities for their satisfaction, considering in turn the structure of human needs, the size of the population, the volume and nature of available resources as well as the technology of their utilization. In examining the material conditions for health and personal efficiency, Meier employs the fruitful concept of essential consumption—dubbing it "Minimum Adequate Standard of Living"—and estimates, for the first time to my knowledge, specific quantities of different resources required to provide for it. By extrapolating the present rate of population

growth and by making due allowance for modifications likely to result from the process of economic development itself, he arrives at an estimate of the approximate number of people whose needs will have to be met in the foreseeable future.

Although it is valuable, this part represents merely an introduction to the truly fascinating discussion of the available physical potentialities for economic progress. Scrutinizing the possibilities for a vast and rapid expansion of the world's supply of food and fuel, Meier breaks new ground and makes some of his most important and constructive suggestions. With regard to food, he stresses two points. One is that even if the present composition of food output should remain unchanged, the world's supply of food could be nearly trebled. Secondly, if feasible shifts in the structure of food production (and consumption) were introduced—in particular by large-scale cultivation of algae and by a strong emphasis on pisciculture—the expansion of the food supply could assume even larger proportions. Once the technological revolution in our food economy has taken place, "the present achievements of science can make the chronic food shortage an obsolete limitation upon human numbers and welfare" (p. 73).

Even more far-reaching in their implications are the opportunities in the other main sector of the economy: the energy supply. There the developments in thermonuclear physics are so momentous that concern over an impending exhaustion of energy sources becomes groundless. Quite apart from solar energy, the utilization of which is practicable in a number of ways, "there is enough energy in the earth to maintain a high level energy-using civilization on a world scale for an age much longer than the recorded history of man" (p. 96).

The exploitation of these immense opportunities is predicated upon fulfillment of several conditions. In the first place, it calls for a commitment to a strategy of economic development that breaks with outworn concepts both in economics and technology, and is in full correspondence to the attained state of scientific knowledge. This implies clear recognition that rapid and large increase of output can be secured only via massive industrialization accompanied by thorough modernization of agriculture—both based on a scientifically considered composition of output and the most advanced methods of production. "The most efficient pattern of industrialization now available to large societies emphasizes the use of continuous-flow processes and automation as much as may be economic in any developed part of the world" (p. 238). This in turn demands large-scale investment in new plant and facilities which can be provided only by a determined social effort. "In order to obtain conditions for the most rapid growth, all income beyond the necessities of life ought to be saved in order to be expended upon the capital goods and services most useful to a program for building up productivity" (p. 159). With regard to the commonly encountered objection that the underdeveloped countries are too poor to generate the required saving, Meier validly observes that "the world has been overmuch impressed by the tales of capital shortages in underdeveloped areas. It should be emphasized that the world *has* the industrial capacity to produce this equipment" (p. 221; italics in the original).

The maintenance of the Minimum Adequate Standard of Living, giving room for maximal accumulation of capital, requires at the same time a purposeful restructuring of prevailing consumption patterns. Since "an over-all improvement in diet depends upon the modification of tastes so that new and more available foods will be accepted" (p. 231), and since such "a change [is] merely a matter of astute education and propaganda" (p. 66), an energetic drive aiming at remolding eating habits could go a long way towards creating an equilibrium between the demand for and the supply of food. Similar modifications of people's preferences in the realm of housing, transportation, and recreation have to be induced by a conscious campaign of demonstration and persuasion. "In a contemporary society which manages to provide a relatively adequate standard of living . . . somewhere between 25 and 40% of all energy is committed one way or another to transport" (p. 123). Such a utilization of energy is highly irrational and can be avoided by a sensible spatial distribution of places of work, residence, and recreation, by sharply reduced reliance on automobiles, and correspondingly increased emphasis on public conveyances, cycles, etc.

It goes without saying that such a concerted endeavor at economic and social reconstruction is only conceivable if guided by a comprehensive plan (p. 239). Yet it is in the treatment of this—fundamental—condition for the materialization of his "realistic utopias" where Meier's discussion lacks the precision and concreteness which distinguish the rest of his book. Although recognizing that the guidance of the development effort by a planning authority serving the interests of society as a whole would be tantamount to a "displacement of the landholding aristocracy and the established old-line mercantile groups from the centers of power" (p. 203), he apparently assumes that the ruling classes to be displaced will cheerfully submit to such a "re-arrangement." While correctly observing that if, under conditions prevailing in underdeveloped capitalist countries, "the national income were markedly increased, it is highly probable that this would lead to an orgy of spending for land, luxury housing, automobiles, refrigerators and other symbols of higher social status and wealth" (p. 159), he surprisingly remarks that "the question of who owns the capital is nowadays almost irrelevant . . ." (p. 211).

This creates a certain sense of imbalance. The author's conspicuous neglect of the role played by *interests* in the socio-economic process makes it possible to discount his work as reflecting naive rationalism or the spirit of technocratic speculation. Such criticism may to some extent be deserved; but it should not be taken to detract from the outstanding merits of the book. Although failing to discern the powerful forces obstructing economic and social progress, the author demonstrates strikingly what could be accomplished given a more rational social order. The book should be widely read not only in the West, it should be translated into the languages of the underdeveloped countries and studied with the utmost attention by those who are concerned with planning and administering their economic and social development.

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Poona: A Re-Survey. The Changing Pattern of Employment and Earnings. By N. V. SOVANI, D. P. APTE and R. G. PENDSE. Publication No. 34. (Poona: Gokhale Institute of Economics and Politics. 1956. Pp. xl, 555. Rs. 15 or $3.50.)

In 1936-37 a broad socio-economic survey was made of Poona.[1] In the following years, Poona underwent a very rapid growth in population. To determine the economic consequences of this growth for living standards, earnings, employment, etc., a resurvey was made in 1953-54. The present volume is a summary of the findings of the resurvey and a comparative analysis of Poona's situation in 1954 with 1937. The resurvey (hereafter called the survey) was made from a 4 per cent random sample of families holding rationing cards; after adjustments this yielded a sample of 5,601 families.

The book presents detailed information concerning family composition, education, occupation, income, housing, labor-force participation and unemployment of the population sampled. These various characteristics are tabulated with such a large number of "cross-breaks," that to attempt a synopsis would be like summarizing a telephone book. Suffice it to say, anyone interested in such statistics for an Asian city will do well to consult this volume.

In the 10-year period preceding the survey, Poona underwent a great expansion of population largely due to immigration. In the interval 1937-1954, the percentage of manual workers in the Poona labor force declined. This partly reflected a relative increase in unemployment, but it also resulted from a substantial relative increase in salaried persons, especially in government employment. Indeed, the authors contend (p. 494) that in Poona, private employment has increased only in response to the increase in governmental activity.

Poona's population growth apparently outpaced the rise in labor demand, for the percentage of unemployed job-seekers increased (pp. 316-22.) In 1953-54, 8.9 per cent of the "labor force" was unemployed (Table 4.3, p. 308); of these 35.5 per cent were looking for employment for the first time. Of all unemployed job-seekers (having previous job experience) 66 per cent had been unemployed for more than 6 months and 49 per cent for more than a year (Table 4.2, p. 307).[2] As might be expected, the unemployed were disproportionately drawn from the ranks of the unskilled. The percentage of the population in gainful employment declined from 1937 to 1954, as the percentage of earners fell from 32 per cent to 29 per cent. This decline was due in good part to a sharp reduction in child labor which was (in part at least) related to a broadening of popular education.

The increase in unemployment (between 1937 and 1954) is consistent with the authors' argument that the economic well-being of most Poona residents declined between 1937 and 1954. They contend that the percentage of families

[1] *Poona—A Socio-Economic Survey.* Part I: *Economic,* by D. R. Gadgil. Gokhale Inst. Pol. and Econ., Pub. No. 12 (Poona, 1945) and *Poona—A Socio Economic Survey.* Part II. By D. R. Gadgil, Gokhale Inst. Pol. and Econ., Pub. No. 25 (Poona, 1952). Poona is a city of about a half million (circa 1951) located about 90 miles southeast of Bombay.

[2] These figures, and the even more startling ones for longer periods of continuous unemployment (*i.e.,* about 20 per cent had been unemployed for between 4 and 10 years!) are questioned by the authors themselves (p. 306).

whose incomes were insufficient to purchase certain budgets labeled "Poverty Line" and "Destitution Line" increased between 1937 and 1954 (pp. 439-57). However, their argument involves the slippery concept of "equivalent adult units" and the questionable assumption[3] that the appropriate quantity weights in consumer budgets were the same in both years. The figures on housing (Ch. 5) leave no doubt but that housing services per person declined during the period; *i.e.*, number of persons per room increased appreciably (pp. 406-07).[4]

The distribution of both annual earnings and family incomes tended to become more equal[5] between 1937 and 1954. This was due to a slight tendency toward reduction in the inequality within occupational classes and, to a greater extent, to a reduction in income dispersion among occupational classes.[6] This decline in inequality is not very carefully analyzed, and the factors contributing to it are left obscure. However, it would seem likely that the sharp decline in the percentage of casual workers—as compared with salaried employees—would be one factor working in this direction. That is, the relative decline in casual employment tended to benefit the lowest annual earners most.[7]

There is information on the life-income cycle in Poona and also on occupational mobility, among generations. The material on occupational mobility, like that on income, occupation, education, etc., is cross-classified by social strata; *e.g.* Brahmins, Weaving Castes, Parsis, etc. Suffice it to say, it merits the careful attention of anyone interested in these subjects.

I found this to be a fascinating book. Its wealth of raw material can hardly help but enrich our knowledge of the comparative economics of developed and underdeveloped areas. Of course, Poona is not India. In his introduction, Gadgil remarks (p. iv) "Many of the results of the re-survey also appear to have significance for the Indian economy in general." This is undoubtedly true, but to draw valid inferences from Poona to India as a whole requires a detailed knowledge of both that is far more likely to be possessed by the members of

[3] Especially since there was a sharp increase in persons per square foot of housing (floor space) and an accompanying increase in family size.

[4] This statement holds for all apartments of less than five rooms, but not for the open-end class of five rooms and over.

[5] As measured by the relative interquartile range.

[6] Despite this decline, the inequality of earnings in Poona was far greater in 1954 than in the United States in (say) 1951. For example, the relative interquartile range for unskilled manual workers was 1.19, for skilled manual workers was .85 and for highly-skilled and supervisory manual workers was .91 (computed from Table 8.3, p. 503). In the United States the corresponding statistic for craftsmen, foremen, operatives and kindred workers was .53. In Poona, the relative interquartile range for lowest professions, primary teachers, etc., was .51; for clerks and shop-assistants, .65; for intermediate professions, secondary teachers, etc., .75 and for higher professions and salaried posts, 1.09. In the United States, for salaried professional and technical workers, and sales workers, the statistic was .54. The reader will note that the U.S. categories are broader than those for Poona and hence tend to exaggerate (relatively) the U.S. income dispersion. U.S. figures are computed from H. M. Miller, *Income of the American People* (New York, 1955), Table 7, p. 24.

[7] This statement, I suspect, would be reversed if the lower percentile considered were the decile rather than the quartile. However, the detailed income figures for 1937 were not included in this volume, and the authors do not attempt the calculation themselves.

the Gokhale Institute than by any foreigner. It is therefore earnestly to be hoped that there will soon appear an essay on the socio-economic structure of India in the light of the Poona resurvey.

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Historia Moderna de México, la República Restaurada: la Vida Económica. By FRANCISCO R. CALDERÓN. Introduction by Daniel Cosío Villegas. (México. Editorial Hermes. 1955. Pp. 812.)

It is gratifying that Mexican economists are beginning to take an active interest in the neglected subject of Mexican economic history. The field is a difficult one in which to work. Secondary literature to guide the investigator is scarce, primary materials for the most part have to be sought in semi-organized archival collections, statistics are fugitive and often unreliable. Mr. Calderón, a young economist on the staff of the Bank of Mexico, is to be commended for undertaking a study in a field in which the going is bound to be rough.

The result, however, is disappointing. The book, containing over 700 pages of text, deals with the ten-year period 1867-1876, the so-called "Republican Restoration" of President Juárez and his immediate successors. It has the appearance of an exhaustive summary of documents, in which the setting down of details seems to be an end in itself. Passages of interpretation are not lacking, but they are scattered through the mass of detail and they tend to be casual and truncated in nature. The value of Calderón's work is found in the materials he has assembled. Perhaps he himself will make more effective use of them later on; but at any rate other scholars exploring Mexican economic history of the last hundred years can be expected to turn to account the information he has worked so hard to collect.

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Venezuela: Política y Petróleo. By RÓMULO BETANCOURT. (Mexico, D. F.: Fondo de Cultura Economica. 1956. Pp. 887.)

Venezuela has the reputation of being the "richest little nation in the world." During the last two decades it has become the second largest producer of "black gold" and the world's largest oil exporter. These facts are known to any reasonably well-informed person. However, Betancourt tells the things about Venezuela which are not so generally known.

Rómulo Betancourt, a former president of Venezuela, is a profound student of his nation's history and problems. In this volume he has written an exceedingly well-documented, if frequently passionate, study of the Venezuelan oil industry and the effect which it has had on the economy, social life and politics of the country.

Betancourt draws a dismal and really shocking picture of the way in which the Venezuelan oil industry got started during the twenty-seven year dictatorship of Juan Vicente Gómez, who ran his country as if it were his private estate. Although the dictator and his *camarilla* benefited greatly from granting

concessions, and the oil companies were able to operate under what were for them exceedingly favorable conditions, neither Gómez nor the British and American oil companies were much concerned to see that the great mass of the Venezuelan people should participate in the returns of the industry.

In the decade after the death of Gómez the most vigorous voices demanding that the country "sow petroleum" and use it to build a richer and more stable economy for Venezuela were those of Rómulo Betancourt and his associates in the Democratic Action Party, which came to power in October 1945. Betancourt devotes a large part of his book to a description of the way in which the regime which he headed sought to increase Venezuela's participation in the benefits of petroleum and to make sure that the returns from the industry were used to create a more diversified economy.

He immediately negotiated with the oil companies the famous 50-50 arrangement, which has since become generalized throughout the international oil industry. The effect of this was vastly to increase the income going to the government from the oil industry. Thus in 1947, when Venezuelan oil production was 130.9 per cent of 1938 output, government income from production was 621.2 per cent of the 1938 return. This amounted to some 814.5 million bolivares, in 1947, though if the pre-1945 terms had still been in effect the government's return would have been only 554.9 million bolivares, according to Betancourt.

The Democratic Action regime invested these funds in an extensive program to "sow petroleum." In the field of agriculture the government, through the Agricultural Bank and the Venezuelan Development Corporation (established by the Democratic Action regime) developed a large program of loans to small agriculturalists. The Development Corporation also began a program of irrigation to bring water to the large areas of Venezuela which needed it. The Institute of Colonization laid plans—which it had just begun to fulfill when the Democratic Action regime was overthrown—for settling Venezuelans and immigrants on some of the extensive government agricultural properties.

In the field of manufacturing, the government's Industrial Bank was given vastly increased funds to lend to Venezuelans interested in setting up new manufacturing enterprises. In the field of heavy industry, the government was negotiating with the U.S. companies extracting the country's iron ore for the establishment of an iron and steel company, under government ownership.

Extensive steps were taken to improve the living standards of the average Venezuelan. The government encouraged a policy of wage increases in private industry, including the oil industry, a policy which it carried out with its own employees. The educational system was rapidly expanded, with particular emphasis on teachers colleges. The health program was notable, as was the Democratic Action administration's housing policy. Instead of concentrating housing activities in Caracas, the regime built workers' homes in most provincial cities, and greatly increased the number of units built.

The Democratic Action government was ousted by the army in November 1948 when Betancourt's successor, Rómulo Gallegos was overthrown. According to Betancourt, most of the policies launched by his party's administration were either allowed to lapse or were reversed by the military dictatorship. Like

dictatorial regimes which preceded them, the army rulers have concentrated on a spectacular building and public works program in the capital instead of a program designed to create a more diversified economy. Betancourt is particularly critical of the army regime's petroleum policy. He accuses this administration of not seeing that the 50-50 agreement is carried out. He also attacks the military government for reversing the Democratic Action policy of not granting new concessions. His charges about the influences which the oil companies have brought to bear in order to get new concessions do not make a pleasant story.

This is one of the most serious and important books about a Latin-American economy to appear in many years.

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Statistical Methods; Econometrics; Social Accounting

Regional Income. Studies in Income and Wealth, Vol. XXI. (Princeton: Princeton University Press, for National Bureau of Economic Research. 1957. Pp. x, 408. $8.00.)

This volume consists of ten papers which were prepared for the Conference on Research in Income and Wealth held in June 1955, together with the comments of conference participants. It presents not only a discussion of the many problems involved in using regional income data, but also points up the value of the regional approach in economic analysis.

The ten papers have been divided into three major groups. Those by Werner Hochwald, Harvey S. Perloff, Walter Isard, and Morris B. Ullman and Robert C. Klove are devoted to some of the conceptual issues generally involved in any study of interregional differences. The papers by Frank A. Hanna, Abner Hurwitz and Carlyle P. Stallings, and Edwin Mansfield present the results of empirical investigations of interregional differentials. The papers by Lorin A. Thompson, John L. Fulmer, and Henry S. Shryock, Jr., are concerned with problems encountered in the estimation of county income.

Hochwald discusses lucidly two conceptual difficulties in regional-income estimation. He argues that (1) regional sectoring of economic activity may only partially coincide with the spatial jurisdiction of institutional transactors who can not properly be identified with a particular geographic area, and (2) that the operations and institutional transactors may, and frequently do, extend beyond the particular region under study. His explorations of the possibilities of estimating regional income in a manner similar to the national accounts is worth considering further. Descriptions of the statistical difficulties encountered in regional-income estimation are handled well and one does not feel that the problems are insurmountable.

Some alternative methods of regional-income analysis are suggested in the comments on Hochwald's paper. The value-added method suggested by F. H. Leacy has merit in that it does not depend on complicated interregional money flows.

The discussion by Perloff on the decisions that underlie interregional com-

parisons is stimulating and thought-provoking. He suggests a dynamic approach and presents the concept of "shifting regions" in assessing regional progress. While the use of variable regions would require enormous work to build up a historical picture for a region each time its coverage was changed, this approach offers considerable food for thought and will no doubt be used by future regional economists.

Isard presents an excellent discussion on the value of the regional approach to economic analysis. His illustrative materials, drawn from policy problems relating to resource use—transportation, tariffs, depressed areas, and monetary and fiscal institutions—point up the wide range of problems which can be approached from the regional point of view. Isard's comment that new and improved tools, procedures and frameworks are needed in regional analysis should serve as a challenge to regional scientists with the "pioneer" spirit.

The extremely good description of the geographic areas for which data are available together with a discussion of the factors which influenced their formulation and their usefulness for economic studies are presented by Ullman and Klove of the Bureau of the Census. Of special interest is the description of the proposed division of the 48 states into 9 groups. The difficulties encountered in putting "marginal" states in one group or another emphasize the need for regional data by smaller areas so that differences within states can be taken into consideration. This discussion also highlights the problems encountered in attempting a single general-purpose grouping of states.

In the opinion of the reviewer, the statistical and conceptual difficulties encountered in identifying and utilizing a single set of general-purpose regions are so great that logic and convenience require the abandonment of the general-purpose region in favor of the concept of the region as a spatial grouping of *selected* features. The factors selected for analysis will vary with the purposes of the analyst and will change over time.

The empirical study by Hanna on interstate income differentials adopts the framework of the United States as a single economy and looks at the differences between states as arising from the varying combinations of skills, industries, and resources. The standardization of earnings provides the basis for statistical correlation analysis which gives "explained" variation in the statistical sense between income and occupations; yet one could not conclude that the spatial distribution of occupations was not affected in some way by state boundaries; the unexplained variation still remains a crucial problem. Hanna's use of a regression line rather than a line of proportional change to describe changes over time in state income seems to rest on solid ground. He is aware of the limitations of both cross-section and time-series analysis; he calls the limitations to the reader's attention and poses questions still to be answered.

Hurwitz and Stallings in their paper on "Interregional Differentials in Per Capita Real Income Change" develop state and regional price indexes for the period 1929-1953. When the price indexes were applied to per capita income, there was no substantial change in the relative position of most states. While this tends to make the authors conclude that nothing was really accomplished by the study, yet the state and city price data presented will be most useful to research workers.

Mansfield's paper on city size and income in 1949 indicates that there are marked regional differences in the median-consumer-unit incomes within cities of approximately the same size. A limitation of the study lies in his use of income data for families and unrelated individuals rather than family income. However the result—there is marked variation in income in cities of comparable size—would undoubtedly not be significantly changed if the latter concept were employed.

Thompson's discussion of experiments in estimating Virginia county incomes from limited current data and relationships from earlier years vividly points up the problems and limitations in making estimates for small areas.

In his paper, Fulmer proposes a method of estimating agricultural income for small areas which is based on a regression equation derived from the state income payments series and limited current data. Some of the assumptions made by Fulmer in his analysis appear to be questionable, for example, that the relative productivity of labor as exhibited in farm wages is the source of differentiation between agriculture and the rest of the economy, and also within agriculture between geographic areas; that all farm labor is paid its marginal value product and the operator is paid for his labor at the same rate as hired labor.

The paper by Shryock describes and appraises the methods used by the Census Bureau and agencies of the various states for making intercensal estimates of the populations of local areas. The importance of this type of data makes this paper together with the comments on it most valuable for regional analysis.

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Economic Systems; Planning and Reform; Cooperation

Marx et le problème de la croissance dans une économie capitaliste. By ÉLIANE MOSSÉ. Centre d'Études Économiques, Études et Memoires, no. 33. (Paris: Armand Colin. 1956. Pp. 250.)

Miss Mossé's elaborate study comprises two main elements: a painstaking recapitulation of Marxian views on the development and the impending downfall of the capitalist system, and a statistical "verification" of these theories by comparing them with the actual evolution of the French economy from the beginning of the nineteenth century to 1913. The theoretical part which occupies slightly more than half of the book is uncompromisingly arid but succeeds in presenting, within a relatively small space, the essentials of the pertinent doctrines. Miss Mossé rightly notes that the theory of economic crises has not been systematically treated by Marx and has been the source of confusion and discord among his disciples. According to her interpretation, there is nothing fatalistic about the Marxian analysis: "It implies both the liberty and the responsibility of man confronted with the evolution of society. Capitalism will not collapse by itself in a purely mechanical way: it is the conscious will of men, conditioned by their surroundings, . . . that will bring about the breakdown of the system . . ." (p. 134).

In the statistical portion of her study Miss Mossé deals separately with the general indices of economic growth and the transformation of the textile industry. She admits that French nineteenth-century statistics are woefully inadequate, lacking in precision, and contradictory (p. 226), but she holds nevertheless that the forbidding tables, charts, and graphs which clutter her pages serve a useful purpose, a contention that some of her readers may hesitate to accept. The Marxian analysis, according to Miss Mossé, "constitutes for the economist—theoretical or practical—an extremely precious intrument of research and action in dealing with economic developments. It gives him the sense of the possible" (*le sense du possible*). She admits that Marx "did not say *everything* on the problem of growth of a capitalist economy" (p. 224), but she has no difficulty in makinng up these deficiencies by drawing on the writings of Lenin and Stalin who are to her the ultimate authority.

The most striking conclusion which emerges from Miss Mossé's statistical investigation is that the economic status of the French workingman has deteriorated throughout the nineteenth century. This generalization is, of course, in agreement with the Marxian theory of the impoverishment of the working class, but it runs contrary to the view prevalent in French economic literature which Miss Mossé ignores. Émile James, under whom Miss Mossé wrote her study, states in his preface that he "refuses to believe that the masses of the French workers are more miserable (*plus misérables*) today than they were in 1850." It is unlikely, however, that Miss Mossé would follow his suggestion "to go beyond" (*dépasser*) Marx. Her Marxist-Leninist orthodoxy is as unbending as it is ardent.

MICHAEL T. FLORINSKY

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Business Fluctuations

Business Forecasting in Practice—Principles and Cases. By A. G. ABRAMSON and R. H. MACK. (New York: John Wiley and Sons. London: Chapman & Hall. 1956. Pp. xiii, 275. $6.50.)

Perhaps, as the authors might put it, we don't know enough to write treatises on "principles" of business forecasting. Certainly the reader will question part of the title, for "principles" are notable by their absence. Cases, yes—six of them—are described in some detail, but nowhere can the reader discover "principles."

The authors undertook, in preparing this volume, to satisfy two objectives, "to give the reader specific information on how forecasts are prepared, including the techniques and reasoning by means of which forecasters reach conclusions from available data," and to "indicate how existing studies of business cycle causation could be utilized more fully." The first objective is served by the six cases, the second is served not at all. Causal explanations are nowhere to be found.

Chapters 1 and 2 purport to set the stage, to provide an essential background against which the cases presented in the subsequent six chapters may be understood and evaluated. In 36 pages the reader is treated to a "survey" of

business cycle theory—profit expectations, psychological theories, monetary theories, monetary and nonmonetary overinvestment theories, over- and under-consumption theories, innovation theories and Keynesian analysis are developed. The upshot of this review is that "responsible and accepted students of the problem have arrived at different explanations—and they may all be right." Fortunately, responsible students have other surveys upon which to base their knowledge of cyclical causation.

Chapter 2's objective is "to present a description of the method or techniques currently in use among business forecasters." "His is not an exact science," state the authors (one wonders as to the nature of sciences and arts) and "forecasts are still estimates about which no one can be sure." Techniques are divided into three, possibly four, basic groups: the mechanical, the causal, and those that assume that individuals must plan ahead. The fourth appears to be a technique involving the gathering of opinion.

Happily, the cases offered as illustrations do indeed describe some sources and procedures utilized by businessmen in preparing forecasts of aggregate business activity. Their quality is far from uniform, but all do provide grist for the mill of those responsible for the formulation of business policies that depend directly on estimates of future aggregate business activity. Many will find the data sources described to be very useful. Especially well prepared was the chapter entitled, "Business Review and Forecast" by Kenneth D. Ross.

The sketchy discussion of procedures, even in the case materials, for relating forecasts of aggregate business activity to forecasts of specific industry or business series, together with the disappointing coverage of the subject of cycle theory and aggregative economics, serve to justify a prejudice of this reviewer. These two requirements for business forecasting are sufficiently complex to deserve treatment too extensive to be incorporated in a single, average-size college textbook. Certainly more adequate and more satisfying materials covering these two subjects can be drawn from more specialized books and articles which have less ambitious objectives but which treat these subjects more exhaustively.

PHILIP NEFF

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Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

Financing Goods. By ALBERT G. SWEETSER. (Newton Highlands, Mass.: Author, 160 Lincoln St. 1956. Pp. xiv, 609.)

This is a highly specialized book dealing with the institutions, techniques and mechanics of borrowing for the purpose of carrying merchandise inventories. The author's aim is not to present a rounded treatment of the areas usually covered in the standard books on business or corporation finance. It is rather to familiarize the reader with the details of practices and procedures, forms and documents involved in day-to-day borrowing operations. It is completely "practical," institutional, and legalistic in its approach; and in its

complete coverage of a small segment of the field of private finance it is something like a handbook or series of monographs held together by the central idea of inventory finance.

After a brief introduction that deals very lightly with the determinants of goods-capital requirements, the author devotes several chapters to unsecured sources of credit, such as open book accounts, bank borrowing, advances by customers and agents. But over four-fifths of the book is concerned with the practical and legal intricacies of secured short-term credit. No less than 305 pages are devoted to loans secured by goods in the possession of lenders, and an additional 144 pages to loans secured by goods in the possession of borrowers. Under the first come such topics as possessory liens, collateralized bank loans, endorsements and guarantees; followed by no less than seven chapters on warehousing and warehousing loans, replete with detail upon detail. Under the second category of secured loans (on goods in possession of the borrower) real estate mortgage security is touched upon and chattel mortgages, trust receipts, and loans by sales-finance companies are treated in some detail.

The author has a penchant for documents and forms, and there is a formidable array scattered throughout the book, reproduced, as is the text, by the offset process. These forms add realism but interfere with easy reading. One warehousing document takes 10 pages (293-302) and is exceeded only by a commodity loan inspection report form covering 15 pages (374-388)! Much of this material was obtained by direct correspondence with institutions, and according to the author more than 100 banks provided some type of credit form. Other concerns such as warehouses, sales-finance companies, etc., sent in many more.

The author's style is direct and clear. This reviewer found the book informative and, as far as he can judge, competently done. But the plethora of technical detail is at times almost overwhelming. Although questions at the end of each chapter suggest its possible use as a textbook, it is likely to be too highly technical and detailed for any but the most specialized courses in the practical aspects of merchandise financing. It could possibly be used for reference purposes in courses where students need to know more about basic commercial documents and practical details. And it is a useful handbook for those in the fields of banking and finance who want an easy reference source for forms, procedures and legal details in this important, though limited credit area.

Chelcie C. Bosland

Brown University

All India Rural Credit Survey. Report of the Committee on Direction: Vol. I, *The Survey Report*, Part I, *Rural Families*. (Bombay: Reserve Bank of India. 1956. Pp. x, 1067. Rs 9.)

In the December 1955 issue of this *Review*, P. T. Ellsworth reviewed Volume II of the report on this Survey, which consisted of the recommendations of the Committee. Volume I is being published in two parts, Part I dealing with the use and users of credit in the rural villages, and Part II with the supply and suppliers of rural credit. Volume I, Part II, will be the last number in the

series. Volume III, called "The Technical Report," describes the technique of the Survey and presents the major statistical findings.

The field work on this Survey was begun in October 1951 and concluded in the following June. The tabulation and analysis was largely completed by August 1954, and a summary was released in June 1955. Apparently it was deemed important to announce the recommendations as soon as possible so as to get needed action under way. It is my understanding that legislation in line with these recommendations has already been enacted.

Economists generally will of course be interested in the findings of this Survey, but this reviewer is more intrigued with the undertaking itself and how it was carried out. This Survey is a striking manifestation of the strong interest which the leaders of India have in mass information about their country. Of course they have periodic census data on the usual subjects, but better and more complete than that of most countries at the same stage of economic development. In addition, an extensive national sample survey is conducted each year under a private contract with the Indian Statistical Institute. The results are in the usual form of totals and particularly averages by area and a considerable number of other groupings. The All-India Rural Credit Survey was conducted in 75, or 1 out of every 4, "districts" in India. Then 8 villages were selected in each of the 75 districts, 4 with cooperative credit societies and 4 without. A "General Schedule" was used with all the families in these 600 villages. From these families, 15 "cultivating families," that is, families farming more land than a garden, were selected for much more intensive inquiry as to farm assets, organization and operation, and business transactions including loans and repayments. These 15 families were selected by stratifying all the cultivating families by deciles according to amount of land cultivated and choosing 2 from each of the upper 5 deciles and 1 from each of the lower 5. The Report is careful to explain, however, that averages for a district obtained by combining the returns for the 8 villages chosen may not truly represent the district, since the villages were chosen to represent the different major sets of conditions in the district. It is most important that these sets of conditions be known and understood. The same must be true for the 75 districts out of the 302 in India. Averages for the particular villages will represent the villages, since all families were enumerated, but not the averages for the 15 families intensively surveyed. It is interesting, for one who has done some work with Indian materials on Indian economic problems, to observe this much of an escape from random sampling.

The chapters in the report deal successively with the outstanding debt of the cultivator and other families, the growth of debt during the year, the trend in indebtedness since the Provincial Banking Enquiry Committee reported on it in 1929-30, the borrowings and repayments, family borrowings for other than food, capital expenditures and formation, gross savings, current farm operations, credit requirements and ability to obtain loans, and the flow of funds among the different groups.

The outstanding debt of the 127,343 rural families surveyed averaged Rs283, and of the cultivator families Rs364. For the cultivating families as a whole, the outstanding debt was only 5.1 per cent of total assets for the 5

upper-decile groups, and 8.7 per cent for the 5 lower-decile groups. The borrowings in the year of the Survey averaged Rs210 for the cultivators, ranging from Rs111 for the small to Rs173 for the medium, to Rs357 for the large and Rs528 for the "big." Put together, these two sets of figures reveal the fact that the cultivator families that borrow live from year to year in good part on borrowed funds. They have to borrow to grow their crops and feed and clothe their families during the growing season. The high interest rate, from 25 per cent up, is in large part what keeps them from getting out of debt. The comparison with the 1929-30 report shows that conditions have been altered very little in this respect. Some of the families, however, manage somehow not to borrow—31 per cent of the cultivators were not in debt at the time of the survey interview—or are unable to borrow. It is these circumstances, of course, that keep the borrowings down to what looks, to one in Western Europe or the United States, like such a low fraction of total assets.

This makes pertinent a question as to the description in the Report of the study of villagers' borrowings as a survey of the "demand" for credit. Of course the information obtained is no more a reporting of what economists mean by demand than would be a reporting of family expenditures in 1956 on woolen goods would be a reporting of the demand for woolen goods in that year. The information obtained does, however, contribute importantly to a realization of the nature of the demand.

For example, it is highly revealing to learn that 47 per cent of the borrowings of cultivator families are for "family expenditures," and that the 42 per cent for farm expenditures was divided 31 per cent for capital expenditures and 11 per cent for current expenditures. The noncultivator families' borrowings were 70 per cent for family expenditures. The family expenditure borrowings of the cultivator class were 37 per cent for clothing, shoes, bedding, etc., 17 per cent for construction and repairs of the house and other buildings, and 28 per cent for marriage, death and other ceremonies.

All these and similar data are reported in tables with the cultivator families by districts classified as big, large, medium and small. A large part of the report is occupied with tables of this sort. There is no differentiation in these tables, however, by individual villages, nor between those with cooperative credit societies and those without.

The information in this Report will be of considerable guidance value in the development of a rural credit program for India. The question is pertinent, however, as to whether it would not have been a more efficient use of resources to have limited this survey to a minor fraction of its present dimensions, and to have used the rest of the survey resources in assembling, unit by unit, the particular data needed to implement the credit program adopted as it moves forward.

Also one must say that after all the information in this Report is merely as to how the present rural credit system is working out with the families. There is little to indicate how alternative systems might work out. To illustrate, a project just now getting under way in India indicates that, for a set of 6 representative case-study farms in 2 districts in Uttar Pradesh averaging 6.9 acres of cultivable land and 3.3 workers per farm, an addition of Rs321

cash expenditures per farm, mostly spent on fertilizer and seeds, would add Rs1219 or 77 per cent, to the gross value of output per farm. With this kind of farming and the kind of cooperative credit societies now operating in the Philippines, the demand for credit in these two districts could multiply several times.

JOHN D. BLACK

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Introduction to Money. By HONOR CROOME. (New York: Barnes & Noble. 1957. Pp. viii, 209. $2.20.)

In fewer than 200 pages, Mrs. Croome, formerly on the staff of the *Economist,* succeeds in skillfully introducing the general reader to many of the basic concepts connected with the subject of money. As the book is addressed to a British audience, most of the background references are to English economic history and institutions, and no less than a fourth of the text is devoted to international currency and trade problems.

A survey of the nature and development of modern money leads into a discussion of contemporary financial institutions, particularly the commercial banks and the Bank of England. Beginners might have welcomed a more extended discussion of that baffling subject, the deposit-creating activity of banks. The heart of the book, the section on monetary theory and policy, simplifies without misleading. Causes of change in the value of money are discussed under the categories: (1) the supply of money; (2) the supply of goods, and (3) liquidity preference. Repercussions of changes in the value of money on different groups in the economy within the framework of existing institutional responses are traced and the need for a monetary authority pointed to. Keynes's *General Theory* is interpreted as focusing on the deflationary tendencies of modern capitalist economies.

Mrs. Croome suggests that the proper aim of monetary policy is the highest attainable level of activity which would not necessitate direct controls or precipitate an "undue" inflation, undue being a rate "which shows signs of accelerating" (p. 123). A review of the various instruments of monetary and fiscal policy concludes with the observation that "Because the steered economy cannot be held to a hairline course, it must keep that much further away from the ditch towards which its natural bias pulls it—the ditch of inflation" (p. 141).

The author departs from her usual practice of cautioning the reader that a certain point is a matter of controversy among economists when in discussing the 1920's she refers to the world's inadequate gold stock and to "a tendency towards deeper depressions and less prosperous booms" in the preceding half century (p. 109). The statement that in the late 1930's nobody could get gold for American dollars (p. 164) overlooks an important feature of our gold policy. Nor was it the case that the 1949 devaluation of the pound was in disregard of the International Monetary Fund (p. 186).

The beginner whose appetite has been whetted by this lucid introduction,

will find well-chosen suggestions for further reading. A few of the titles would not interest the American student.

BENJAMIN J. KLEBANER

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Public Finance; Fiscal Policy

Financial Policy 1939-45. By R. S. SAYERS. (London: H.M.S.O. and Longmans, Green. New York: British Information Services, distributor. 1956. Pp. xv, 608. $6.75.)

This admirably written volume is one of the Civil Series, edited by Sir Keith Hancock, in the British History of the Second World War. It is based largely on official papers, primarily those of the Treasury, but it also benefits enormously from Professor Sayers' own skill in weaving together and interpreting the vast masses of materials covered. The unwillingness of the authorities to allow publication even today of some of the critical figures (p. xii) does not seem to have done substantial damage.

The study has three important characteristics which at the same time are, in a sense, serious limitations. First, it is largely concerned not so much with the content of policy as with the formation of policy: not so much with what was done and what results followed, as with how and why particular views came to be adopted and particular actions taken. Unless one already knows the sequel, it is at times like reading a mystery novel which tells why the murder was arranged but not, except inferentially, whether it ever really took place. It is a study in the politics of economics, but there is little explicit economic analysis as such. Second, the formation of policy is itself presented almost entirely from the point of view of what happened in London and what London knew at the time. This is an understandable procedure, but its consequence is that in the chapters dealing with international problems the motivations of other nations are sometimes, and inevitably, misinterpreted. The informed American reading the chapters on Lend-Lease, for example, is often moved to vehemently restrained comments beginning "Yes, but don't you see that . . . !" Third, there is a marked paucity of statistical data in the text, only partly made up for by the appendices. This is in the main a reflection of how the Treasury actually worked. The war-time Treasury official was often and perhaps usually brilliant, but in a sense he was, as Sayers remarks, "traditionally the very shrewd amateur" (p. 379), not a seed-bed or a processing machine for statistics. The reader is explicitly and very fairly forewarned of these various characteristics in the preface, but they still plague him to the very last page.

British financial policy in the war had two rather different components, internal and international. In wartime the two are perhaps more nearly separable than in times of peace, but there must surely still have been many connections between them. Yet at most points they are here presented as though they were two independent sets of phenomena. The explanation is perhaps that much the same groups of men must have influenced the formation of the main

lines of policy in both areas, and have taken the central decisions; and that the actual existence of the cross-connections was hence inherent in the operational set-up itself. The outside reader, however, sometimes feels puzzled by the apparent compartmentalization.

The great problems of internal financial policy, which occupy roughly the first half of the book, were two: first, to get both the people at large, and many oversanguine officials of government itself as well, to realize how gigantic the task of carrying on the war was going to be; and second, of devising means to raise the necessary sums without serious contemporary inflation. During the first two years, of the "phoney war," it was somehow thought that shortages of raw materials would soon hamstring the Germans; and this optimism was reflected in the relatively moderate (by hindsight) increases in taxation and the reliance on "voluntarism" with respect to bond sales and other matters. The German invasion of Norway and Denmark, the fall of France, and Dunkirk brought a rude awakening. Happily the intellectual ground had been largely prepared by Keynes' celebrated articles on "How to Pay for the War." Even his arithmetic was largely accepted, and the general form of the 1941 budget, once hammered out, was not materially altered for the rest of the war. Overt inflation was avoided. Sayers' account of all this is clear, often dramatic. But one misses any substantial appraisal of the simultaneous problems of repressed inflation, of the distribution of the "real" burden of financing the war, and of the heritage left for the postwar period.

International financial policy was a far more complex thing, partly from its very nature but partly because Britain had different attitudes toward and arrangements with almost every country. Moreover, whereas internal policy proceeded with assurance after 1941, international policy was an unending series of desperate struggles and hair-breadth escapes from catastrophe: struggles to keep armaments, materials and food flowing in; to maintain the economic functioning of the Commonwealth and the wider sterling area; to cope with the ominously swelling sterling balances and the constant threat of foreign exchange depreciation; and to save at least a little from the wreckage of the pre-1939 economic empire with which to make a new start after the war. These chapters are among the most gripping and most illuminating of all the published chronicles of the war.

A considerable portion of them is naturally devoted to relations with the United States. The thing that stands out here with painful clarity, however, at least to any American who had much contact with the other end of some of the same problems, is that despite enormous effort and good will the British and the Americans involved never wholly succeeded in understanding one another's standards and objectives. The British wished to regard the Lend-Lease and Mutual Aid arrangements as meaning, at bottom, financial pooling. We did not. Even apart from the tortuous problems of relative standards of living and of the "essentiality" of Lend-Lease exports (problems which are hardly mentioned), we regarded Lend-Lease as being basically a provision of marginal supplements, to be made only *after* the British had pretty well exhausted their own resources at each point in time. Again, they thought we should in effect compensate them for at least some of the enormous and crucial

burdens they had carried before Lend-Lease began. We disagreed, tending rather to the view—however unreasonably—that the earlier phases of the conflict had been none of our affair. Again, we were waging war in two major theatres, not in one alone, but the British never seemed to grasp the extent and effects of our economic and emotional pre-occupation with the Pacific. Many of our own officials, in turn, did not understand the defense for, and mistrusted, British concern over the postwar economic situation and their consequent urgent desire to maintain a reasonable volume of export trade even in wartime. The bitterness over the Export White Paper, the mutual suspicion and conflicts over South American markets, and the maddening American demands that Lend-Lease be cut whenever British hard-currency reserves increased a bit, were inevitable but almost tragic results of all this. The brutally sudden termination of Lend-Lease after V-E Day, against which many American officials protested at the time, was simply part of the same pattern.

Sayers sets out the British side of these struggles with great objectivity, and indeed with remarkable insight into at least a good deal of the American attitudes (often themselves only partly conscious); the passages beginning on page 376 are admirable. In the main, also, his presentation seems to me convincing. Even apart from considerations of whatever one may wish to describe as "justice," and in terms merely of American self-interest, the postwar history of trade discrimination and of the urgent need for loans and renewed aid strongly suggests that in the long run a more generous Lend-Lease policy would have been cheaper for us, and might well have led to a much earlier solution of the problems of postwar reconstruction.

JAMES W. ANGELL

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Studi di scienza delle finanze e diritto finanziario. Vols. I and II. By BENVENUTO GRIZIOTTI. (Milan: A. Giuffrè. 1956. Pp. xl, 521; xiii, 585. L. 3.000 each volume.)

These volumes collect the independent essays of the late Professor Griziotti, one of the classical scholars in the Italian tradition of public finance. The separate contributions date from 1908 to 1954, and they cover a wide variety of subjects. Luigi Einaudi contributes a preface to Volume I. The late finance minister and author of the Vanoni plan for Italy's economic development, Ezio Vanoni, a former student, contributes a preface for Volume II. A complete bibliography of Griziotti's work appears in Volume I.

Griziotti was born and reared almost within the shadows of his beloved University of Pavia where he was educated and where except for a very brief period, he did all of his work. He was instrumental in the efforts to preserve for public finance its status as an independent branch of scholarship in Italy. To Griziotti, the study of public finance must begin with a recognition of the separateness of the subject-field itself, and the study must encompass the various academic disciplines as they are relevant. He continued to oppose those who would reduce finance theory to applied economics, and he emphasized the importance of the politico-legal aspects of financial problems. In some respects he was close to the American institutionalists, notably Commons.

Although he was interested in the practical value of the study of public finance, there was little of the welfare economist in Griziotti. He deliberately refused to construct norms for the distribution of the tax load or for the relative share of resources to be devoted to collective uses. The requirements of the state were to be accepted as data, and finance theory constituted the analysis of the fiscal structure to determine if these requirements are met in accordance with widely accepted ends of the social group. This positivistic approach, however sterile it may have proven to be, justified Griziotti's defense of public finance as a science.

The problems of tax capitalization and the comparative effects of taxes and public loans have both been important topics in Italian fiscal theory. Space permits only brief discussion of Griziotti's contribution to each of these. In an article written in 1918, he tried to refute the widely accepted doctrine that taxes can be capitalized only in so far as they are partial; that general taxes cannot be capitalized. This view, associated at that time with Seligman and Adams in the United States (and recently advanced anew by Stockfisch) holds that a general tax will reduce both the rate of return and the rate of capitalization and will, therefore, leave capital values unchanged. Griziotti tried to show that the effects of a general tax upon the rate of interest are not at all certain, and that tax capitalization could take place. In this, he supported the more articulate argument of Einaudi, with the result that essentially "correct" views on tax capitalization have characterized most recent Italian work in fiscal theory.

Italian scholars have devoted much attention to the Ricardian proposition that extraordinary taxes and public loans exert equivalent pressure on the economy. De Viti De Marco accepted and elaborated this proposition and opposed it to the so-called common view that public loans do involve a shifting of the tax burden to future generations. Griziotti arose to the defense of the common opinion in a 1917 article, stating that public debt creation does involve a shifting of the burden forward in time. This long essay, if read hurriedly and uncritically by almost any economist trained within the last twenty years, would appear to be sufficient to relegate Griziotti to the ranks of the confused and the unenlightened. But the theory of public debt is urgently in need of repair. When the dust of the current neo-Keynesian orthodoxy is finally cleared away, this Griziotti essay may take its place alongside the works of Bastable and Leroy-Beaulieu in helping to re-establish what is, essentially, the "correct" classical formulation of debt theory.

JAMES M. BUCHANAN

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Finances comparées. By H. LAUFENBURGER. (Paris: Recueil Sirey. 1957. Pp. x, 490. 2.800 fr.)

The literature of public finance in Europe gives much more emphasis to comparisons of tax and expenditure systems of various countries than that of the United States and Great Britain. *Finances comparées* is devoted entirely to this question, presenting a comparison of the systems of government finance

in France, the United States, Great Britain and the USSR. Professor Laufenberger, who will retire in the near future from the chair of public finance in the Faculty of Law at Paris, enjoys a breadth of knowledge of the literature and practice of public finance of various countries that is almost unparalleled, and thus is particularly competent to prepare a work of this type. In a sense this is a third edition of a book which first appeared in 1944, but each edition has been changed so greatly from the previous as to constitute essentially a new book. Particular stress is given to recent developments, proposed reforms, and new literature; the material and statistical data are brought well up into 1956, a remarkable accomplishment for a book which appeared in print early in 1957.

The discussion is by no means equally divided among the four countries covered. The book is particularly useful to the American reader who wishes a survey of the French government financial system, to which greatest emphasis is given. However, the summary of the British and American systems is entirely adequate, and contains only a few minor errors (such as reference to a 26 per cent rate on capital gains in the United States). By contrast the discussion of the USSR tends to be superficial and is derived almost entirely from a few secondary sources. The coverage is in some sections extended to additional countries, particularly Italy and West Germany.

The first part of the book is concerned with governmental budgetary systems, with emphasis placed on their relation to the national economic budgets, which are reviewed in some detail. The increasing importance of this relationship is attributed to the growing role of government finance in the economic system. From this discussion there follows an interesting, if not conclusive, analysis of the problem of the measurement of the relative tax burden in various countries, together with some data for the countries discussed. The role of the governments in economic planning is developed, with emphasis on France since 1945, and on the intermediate position which it occupies in the field of economic planning between the USSR and the Anglo-Saxon countries.

The remainder of this first part is devoted to more technical questions of governmental budgeting, with reference to the operation of the systems in the various countries, the relative role of the legislative and executive branches, the scope of the budgets, deviations from an annual basis, the treatment of trust funds and governmental corporations, and particularly the growing importance of the performance budget. This is attributed primarily to the increasing role of fiscal policy and economic planning. Budget reforms in the United States and France in the last decade are stressed.

The second part is a straightforward comparison of the tax systems of the four countries, the bulk of the space being allocated to income taxation, with stress on the differences among the various countries, particularly in the treatment of corporate profits, and the inadequacy of the French personal income tax system. Attention is given to the various concepts of income, the treatment of capital gains, the general structure of the taxes (single or multiple personal taxes, for example), and deductions. The various approaches to the taxation of corporate profits are reviewed, as well as reform proposals, including a detailed analysis of the report of the British Royal Commission on the Taxation

of Profits and Income, and various systems of accelerated depreciation. The section on sales taxation surveys this form of tax in the four countries, with emphasis on the French reforms in recent years which terminated in the adoption of the value-added tax. Brief reference is given to excise levies, and to state sales taxes in the United States. The book contains no systematic treatment of death duties, property taxes, or highway finance levies.

The third section of the book is intended only as a summary of the question of government debt. In large measure it presents a review of theoretical questions relating to the significance of government borrowing and national debt, without reference to particular countries; later sections note briefly the borrowing policies and debt structure of the four countries.

The author's approach is more descriptive than analytical, yet the book is much more than a bare recital of factual material, largely because the description is organized in terms of an analytical framework, which gives it cohesion. The writing is simple and straightforward, unlike that of some of the author's more philosophical works, which are not easily followed by a person whose native language is not French. The author seeks to develop one central thesis, namely, that of the similarity of the systems of government finance in the four countries, including the USSR; and he concludes the volume with a statement that perhaps the similarities of financial techniques may aid in lessening the gulf between East and West. This emphasis on similarity has one unfortunate effect; the different significance which taxes have in communist and noncommunist countries is not adequately developed.

JOHN F. DUE

University of Illinois

Kaufkraftübertragungen durch öffentliche Finanzen—Ein Beitrag zur Theorie und Statistik der fiskalischen Einkommensredistribution. By GERHARD EISNER. (Winterthur: P. G. Keller. 1956. Pp. xvi, 128.)

"Monetary transfers through public finance, a contribution to the theory and statistics of fiscal redistribution of income" is a doctoral dissertation, written under the distinguished supervision of Professor W. Bickel of Zürich University. The book is a synthetic review and evaluation of doctrines and statistics of income redistribution.

The first chapter, on the concept and process of redistribution, is the least satisfactory of the book. The author fails to identify clearly the notion and forms of income transfer. Some perplexing statements mar this introduction, *e.g.*, the statement that the contribution of the State to national income is equal to the difference between its "real" (*i.e.*, nontransfer) expenditures and its "real" receipts, or to the deficit of the nontransfer account.

In the statistical part, the author reviews the investigations made in Great Britain by Colin Clark, T. Barna, F. Weaver, A. Peacock and P. R. Browning; in the United States by C. Stauffacher, A. Conrad, R. Tucker; in Denmark by K. Lemberg, N. Ussing, F. Zeuthen; and in France by H. Brochier. These studies all concern the redistributive effects of fiscal policy. The author's most original contribution is an attempt to compare internationally the results of the inquiries, by means of a set of coefficients. This leads to the following conclusions: (1) In the United Kingdom as well as in the United States, the

ratio of total fiscal revenues to national income is increasing; (2) The redistributive *potential*, or the extent to which total income can be further equalized vertically, is declining; (3) The income equalization effect of taxation and public expenditures is rather constant through time, and much the same in the United Kingdom and in the United States: only 20 to 30 per cent of public expenditures accrue to income groups which have not contributed their integral share of them; (4) The net redistribution of income is increasing in both countries, not because of the greater progressivity in taxation and benefit scales, but because, with proportionately similar scales, a larger share of national income passes through government.

In the second part of the book, the author looks into economic doctrines for justifications of income redistribution. He surveys Benthamian utilitarianism, Paretian objections to interpersonal comparisons of satisfactions, and Keynesian oversaving worries. This excellent study of the history of thought leads to the conclusion that the extensive redistributions achieved by modern governments are not sustained by any solid or unchallenged economic theory. The foundations of redistributive policies in democratic countries are rather to be sought in ethical and religious ideas that are as old as humanity.

It may be regretted that the impact of redistributive policies upon economic efficiency has hardly been hinted at. But even with its narrow scope, this book is a helpful contribution for those who look for an introductory survey of the subject.

Roger Dehem

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International Economics

A Proposal: Key to an Effective Foreign Policy. By Max F. Millikan and W. W. Rostow. (New York: Harper & Brothers. 1957. Pp. xi, 170. $2.75.)

The heart of this book is the proposal that the United States, in cooperation with other developed countries, should assure every underdeveloped country that it can have as much capital as can be used productively. The authors argue for their proposal on two grounds. First, the "most pressing interest [of the United States] is to help the societies of the world develop in ways that will not menace our security—either as a result of their own internal dynamics or because they are weak enough to be used as tools by others" (p. 39). Persuasion toward this goal is a weak tool, and political intervention is likely to backfire. The United States should rely on effective economic support, neutral with respect to political issues, as its means—not particularly to recruit explicit "allies," but to develop political responsibility within the developing countries. "Under modern conditions some improvement in the standard of living, while not enough by itself, is . . . a necessary condition for the development of stable and peaceful societies, and for the survival of democratic institutions" (p. 25). Such societies will not threaten U. S. security.

Second, the United States is easily able to meet its reasonable share of such a program. The authors estimate the amount of additional capital that could be productively absorbed by the underdeveloped countries at $2.5 to $3.5

billion a year. The recent (1953) rate of flow of investment into these areas was about $3 billion, of which $1.3 billions came from Europe, and $1.7 billions came from the United States. Suppose that practically all the added capital flow came from the United States. Then our contribution would rise from $1.7 billions to $4.2 or $5.2 billions, or from 0.4 per cent of our current gross national product to 1.0 per cent or 1.2 per cent. Actually they think the maximum probable burden on the U. S. Treasury would be no more than $2 billion a year, over 80 per cent of which would be loans.

How do the authors obtain their estimate of $2.5 to $3.5 billion a year additional absorptive capacity for external capital? They apply a rough pattern, already presented by Rostow elsewhere and summarized in Chapter 5, that economic growth takes place in three stages. In the first stage, the preconditions of growth—in peoples' attitudes, in organization, and in capital facilities—are set up. Absorptive capacity for capital is low. In the second, the forces for progress become decisive: average and (especially) marginal savings expand, key industries burgeon and earn profits which are reinvested, businessmen (private or public officials) become conspicuous, new techniques spread. Demand for foreign capital reaches its maximum. India is now probably in this stage; Indonesia will be in a few years; certain parts of Africa, in a decade or more. In the third stage, growth is continuous if fluctuating, domestic savings grow abundant, and the need for foreign capital falls.

For all underdeveloped areas save Latin America, the authors assume that the maximum additional absorptive capacity for foreign capital (to be reached about three years after the program is begun) will be 35 per cent of what gross capital formation was in 1953 (p. 156—not 30 to 50 per cent, as erroneously stated on p. 99). For Latin America, the percentage applied is 14. These rough percentages assume that the former areas are, or in only a few years will be, largely in stage 2, and that some main Latin American countries are coming into stage 3, where domestic savings increasingly replace the need for foreign funds.

With this maximum capital inflow of $3.5 billion a year, and assuming a "conservative"—that is, a high—marginal net-investment-output ratio of 3:1, they estimate that there would result a per capita income growth of 1 to 2 per cent a year.

As qualifications to a generally very favorable reaction, I would list the following: (1) The authors believe that consumption cannot be reduced in underdeveloped countries in order to free resources for investment, "since their populations are at the margin of subsistence" (p. 97). The obviously large variations in average real income in these areas make one wonder what meaning can reasonably be given to "margin of subsistence." In many an area the flow of resources into consumption *could* be cut considerably without a rise in mortality rates. I have been impressed in Ceylon by the fact that calories could be obtained by the population in the form of casava at a fraction of their cost in the form of the preferred food, rice—in recent years, at as little as one-sixth or one-seventh. I think the main, and sufficient, arguments against cutting consumption are different—the costs of changing peoples' habits and the effects on incentives. (2) The data on income, income growth, and investment are of course subject to wide error. The marginal net-investment-output ratio, as-

sumed for the underdeveloped areas as a whole to be 3:1, in particular deserves a suspicious stare. The 2.3:1 figure of India's second five-year plan, used by the authors as a benchmark, appears now to have been much too low; probably 3:1 would also be clearly low, by India's current experience. Hence, per capita income growth may well be appreciably lower than the authors estimate—and lower still if rates of population growth (p. 155) rise beyond expectation. (3) The criteria recommended (Ch. 7) for assuring that capital "will be productively used," do just that—and that is not enough. The aim should be that resources flow into channels of *maximum* productivity—not just that they are not wasted. One misses sharply here the notion of a schedule of priorities, in which projects are ranked in accord with their investment return—return being appropriately defined and qualified by social considerations.

These are minor qualifications to the unmistakable excellence of the book. It is well organized and well reasoned, tempered in its evaluations, very readable and sometimes eloquent. It is a useful contribution in the good tradition of political economy.

THEODORE MORGAN

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Problems in the International Comparison of Economic Accounts. Studies in Income and Wealth, Vol. XX. (Princeton: Princeton University Press, for National Bureau of Economic Research. 1957. Pp. x, 406. $8.00.)

The six papers and comments of fourteen economists in this volume deal with a variety of problems of national income, balance of payments, index numbers and international comparisons of economic quantities. Only a selection of these are discussed here.

Morris Copeland seeks a system of accounts adaptable to the needs of all nations. He suggests that it be built upon tables of gross national product emphasizing separate treatment of the corporate sector, inclusion of the financial components of savings of all sectors, subordination of savings and depreciation accounts for noncorporate sectors and elimination of the national income concept.

Important advantages of this approach are: The emphasis on lending and on real investment rather than on savings facilitates the elaboration of the accounts into money-flow and balance-sheet studies. The streamlined treatment of noncorporate sectors aids the simplification of accounts where necessary, since income items and also product entries may be combined without depreciation and savings complications. Finally lending is a cleaner, more objective, measure than savings, and more significant from the Keynesian standpoint which stresses the effects on demand of financial behavior rather than of savings per se.

Gerhard Colm believes that solution of the problems of measuring government product is implied in the distinction between production and consumption. Products such as services of the armed forces, which are substitutes for consumer goods whether the choice is made politically or individually, are final products. Products such as services for business, that are complementary in production, are intermediate. The problem of placing values on government products is handled similarly in terms of substitutability of products. If a

method of valuation makes a dollar of government product the alternative to output of a dollar of other final product, it is correct. Thus Colm finds that services of capital goods owned by governments should be counted in national product, and that the valuation of goods in national income should include indirect taxes. The argument is sound, but would benefit from distinction between substitution from consumer and producer standpoints.

Marilyn Young has provided excellent detailed explanations of the computation of the government accounts by the Office of Business Economics and of the relations of these to government budgetary data. Particularly valuable is the information on accrual concepts used in timing receipts and expenditures. Most impressive perhaps is the explanation of how accounting for passage of a Navy ship through the Panama Canal is accomplished, a problem which would strain the most hard-bitten statistician.

Herbert Woolley presents an 11 by 11 matrix of international transactions for the year 1951. Each entry is the exports in dollars of one of the eleven areas to another. In reconciling data, Woolley has found that asymmetrical treatments by countries of area definitions—particularly for foreign-flag shipping and for oil company transfers—cause serious discrepancies. These problems and revealed patterns of world trade are bases for interesting discussions.

Goods compared between times or places usually show modifications of specifications. Index-number compilers assume that price changes of artificially selected goods measure those for other goods. This can be justified by assumptions regarding the substitutability of outputs in the production process. Dorothy Brady and Abner Hurwitz appear to be examining this approach, but they are also experimenting with an alternative based on substitutions in a consumer's preference function. If commodities have similar demand curves of unit elasticity, the Paasche and Laspeyre price indexes are related so that the relative difference of the indexes equals the covariance of price relatives of individual goods and the reciprocals thereof. Since this is negative, the Paasche index is below the Laspeyre index to a degree, depending mainly on the dispersion of price ratios among commodities. The writers attempt to apply this result by observing that arbitrary matching of goods will increase the dispersion, since the price ratios will depend upon the choice of physical units used for measurement. This is not very successful, but the general approach is promising.

Irving Kravis considers the problem of comparing production and income aggregates of countries of different culture and institutions and particularly the problem of imputing the values of services not entering the market. To determine whether or not a nonmarket activity is product or consumption—work or play—one may consider the effects of rates of pay, using an elasticity coefficient expressing the change in time spent on any activity produced by change in rates of remuneration. The rule is this:

> *Since economic activities are sensitive to changes in reward in alternative activities, they are characterized by high time-allocation elasticities. On the other hand leisure-time activities, which do not respond readily to possibilities of gain in other activities have low time-allocation elasticities* (p. 370, author's italics).

The usefulness of the rule is doubtful. If rates of pay go up, one may give up horseshoes for golf. Possibilities of substitution among leisure activities render them sensitive to rewards.

This problem would be clearer if defined in terms of economic theory. The traditional basis of value theory, that of alternatives, provides a theoretical solution of imputation problems. Household activities for which nothing would be paid to others for performance, such as sleeping and making love, are leisure activities. Others, such as housecleaning and nonworking time itself, for which something would be paid, have value at prices somewhere below the costs of purchase of such services in the market. Statistically this is difficult, theoretically not. This problem, involving choices actually made by individuals, represents one type of problem of international comparisons. Other problems arise when artificially conceived comparisons are sought, such as consumer behavior of transported persons, production under altered circumstances of tastes, trade barriers, population and the like.

The general impression of the volume may be stated in such terms. Meaningful answers to arbitrary questions of comparisons can probably be given when the questions are well defined. The workings of the economies themselves provide answers to other questions.

Paul B. Simpson

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United States Imports and World Trade. By Henry G. Aubrey. (New York: Oxford University Press. 1957. Pp. x, 169. $3.40.)

Aubrey has attempted in this study a rather brave forecast of the value of U.S. imports in the mid-'seventies. Building up from individual commodity volume and price estimates, which comprise about two-thirds of the projected total value, he arrives at some clue to the possible balance of payments for this country, and thus an indication of the probability of any long-lasting "dollar shortage."

Most of his estimates have ranges, for both price and quantity, with a "most likely" middle figure. In 1953 dollars, Aubrey sees our imports almost doubling to about $20 billion. Six commodities account for five-sixths of the anticipated increase: petroleum, coffee, iron ore, newsprint, nickel, and aluminum. While not spelling out the geographical implications in too great detail, it is quite clear that Aubrey expects the major part of the additional outflow of dollars to acrue initially to the Western World, especially Canada, Brazil, and Venezuela. Hence, Western Europe, to improve its dollar position, would find it necessary to expand exports particularly to third areas, a by no means easy task, since, among other adjustments required, would be a reversal of its current import surplus with Canada to a sizeable export surplus. Direct expansion of European exports to this country is not expected to account for a major share of any hoped-for increase in the dollars going to that region.

For quantity estimates of both U.S. imports and domestic production and requirements, Aubrey has leaned heavily on the findings of the Materials Policy ("Paley") Commission, modified by later revisions of population projections. When in doubt, Aubrey has preferred the more conservative—lower

—import estimate. Price estimates were obtained through discussions with informed members of the trade, using the 1953 dollar as a base, so that the price movements are relative only. No significant tariff changes were assumed. As a result of drawing on these various sources, Aubrey's estimates are usually in three levels—low, most likely, and high—and sometimes for each of these there are three estimates, such as when both the price and volume have three possible projected figures.

To assess the probable accuracy of such a study is to enter, of course, into comparative guesswork. It is certainly interesting to get some idea of the magnitude of our trade two decades from now. Obviously, if the signs point to a volume almost twice the current rate, the adjustment of the rest of the world will be far more easily achieved than if the total is a shrinking one. And Aubrey does indicate a substantial rise in the over-all figure.

It is also of interest that most of the anticipated increases will accrue to a very limited number of the world's traders—mainly, the Western Hemisphere. Hence, we have some indication of the type of effort other areas must make to obtain the needed dollars through multilateral trade, *e.g.*, by emphasizing "development goods" (machine tools, electronics, and turbines). And, as already indicated, this will not be simple even in the expanding milieu anticipated—although Aubrey is somewhat more hopeful than this reviewer.

On the other hand, despite the tremendous amount of work that went into the study, the reviewer is left with an uneasy feeling regarding the unforseeable—yet no estimator can be expected to bring such a feeling into his estimating procedure. Considering the dynamic nature of our economy and the rate of technical progress, however, one wonders whether new developments may not shift trade more drastically than the author has allowed for. True, he does recognize this inferentially, for he states that very little of the now unknown is likely to become a sizeable factor twenty years from now. Yet, with company after company reporting that much of their sales come from products not produced a decade before, one wonders whether such foresight is as precise as implied.

Nevertheless, this criticism can be made of any long-range forecast. Hence, the reviewer can only applaud Aubrey's willingness to undertake a difficult task, and admire the thoroughness with which he has accomplished his mission.

EDWARD MARCUS

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Business Organization; Managerial Economics; Marketing; Accounting

An Introduction to Operations Research. By C. W. CHURCHMAN, R. L. ACKOFF and E. L. ARNOFF. (New York: John Wiley. London: Chapman & Hall. 1957. Pp. x, 645. $12.00.)

Although this book has not been written by economists nor for economists, the authors have rendered a valuable service to the economic profession: the publication of this volume increases by some 50 per cent the quantity and by somewhat more the quality of existing textbooks on operations research.

Operations research is not a branch of economics.[1] It consists, according to the authors (p. 18), in "the application of scientific methods, techniques and tools to problems involving the operations of a system so as to provide those in control of the system with optimal solutions to the problems." This definition is quite acceptable, if one is willing to include in the "problems involving the operations of a system" the problems raised by the structure of the system itself: operations research today provides us with "operational" ways of studying structures as well as "operations." (If anything, the authors have overemphasized the usefulness of operations research techniques for regulating the operations of a system, and underemphasized the usefulness of these techniques for improving upon the structure of a system.)

The "problems" referred to are "executive-type problems encountered in all areas of administration." The fact that "executive-type problems" typically involve the "balancing of at least two conflicting aspects of the system" does not reduce all such problems to economic dimensions—but it indicates that many aspects of the theory of the firm are susceptible of being analyzed by the techniques of operations research. It is, therefore, not surprising that the bulk of the analytical results contained in the book consist in deriving, for specific situations, the precise (mathematical) nature of the "marginal conditions" of the economist. Here lie the interest and significance of this new field for economists. Short of being completely satisfactory, the account of that field given in the book under review is a substantial improvement on previous attempts.

It is not surprising that the quality of the book should be very uneven, since it contains contributions by 15 different authors which were originally used as lecture material for the "Short Course in Operations Research" taught at Case Institute of Technology. Actually, we are offered two separate books under one cover. What I shall call Book I is made up of Parts I, II, III, IX, and X—some 300 pages altogether; it is primarily addressed to "prospective consumers" of operations research; it deals almost entirely with methodology, and it was written primarily by the three authors whose names appear on the cover of the book; no special mathematical training is required from the reader of these parts. What I shall call Book II is made up of Parts IV to VIII, *i.e.*, some 400 pages; it is primarily addressed to "potential practitioners" of operations research; it deals with standard tools and techniques of operations research and it was mostly prepared by other authors; an elementary knowledge of calculus, and occasionally of matrix algebra, is required for the understanding of these parts.

Although most of Book I is of little interest to economists qua economists, it does provide a broad coverage of the main methodological issues encountered in applied operations research. Such an attempt, in a field that is not yet 20 years old, is at the same time meritorious, ambitious, and bound to be only partially successful.

Two sections of Book I are more likely to interest economists. Pages 174-84

[1] The overlap with R. G. D. Allen's new book, *Mathematical Economics* (New York, 1957), is limited to 2 chapters out of 22: those on linear programming and on the theory of games.

give a brief description and illustration of the Monte-Carlo technique.[2] Chapter 6 outlines a procedure for assigning relative values (utilities) to a set of objectives. This procedure, like the early attempts of Fisher and Frisch, is based on an additivity assumption (the utility of A and B is equal to the sum of the utility of A and the utility of B). It provides an iterative procedure for ranking objectives on an "ordered metric scale"[3] and is, therefore, distinct from the cardinal utility approach of modern economics. Surprisingly enough, no attempt is made at assessing the normative implications of a theory of choice from the standpoint of a firm. The discussion of the choice of a decision function in the face of uncertainty (pp. 123-28) is brief and formal. Utility theory is referred to—but not done justice[4]—in a note at the end of Chapter 6, where some of the economic literature is also quoted. Here, as elsewhere in the book, one has the feeling that a more systematic coverage of published material and less reliance on specific studies made by members of the staff of Case Institute of Technology would have enhanced the quality of the product.

Book II provides the reader with a fairly accurate picture of what operations research models are, and of what they can do. It does not, however, provide him with a complete summary of results, nor does it contain important new developments—with one exception later to be mentioned. Essentially, five types of models are discussed: lot-size formulae[5] (Part IV); linear programming (Part V); queuing theory[6] (Part VI); replacement formulae[7] (Part VII); and game theory (Part VIII).

[2] "The Monte-Carlo technique is a procedure by which we can obtain approximate evaluations of mathematical expressions which are built up of one or more probability distribution functions; . . . In essence, the Monte-Carlo technique consists in simulating an experiment to determine some probabilistic property of a population of objects or events by the use of random sampling applied to the components of the objects or events" (p. 175).

[3] This concept has been used extensively by C. H. Coombs; see, *e.g.*, his papers in *Decision Processes*, R. M. Thrall, C. H. Coombs, and R. L. Davis, ed. (New York, 1954).

[4] The reader is left with the wrong impression that utility theory is inadequate because it assumes complete agreement between objective and subjective probabilities. The authors avoid the basic problems raised in that connection by resorting to nonoperational measures of utility and probability. Such a position does not seem to be tenable when probabilities have to be estimated, not by the "decision-maker" himself, but by his agents.

[5] Lot-size formulae are used to compute the quantities of one or more items that should be procured in order to: (1) meet given requirements, that may either be known with certainty or be estimated; (2) minimize a total cost function, including such elements as: fixed and variable procurement costs, inventory carrying costs, run-out costs, etc.; (3) eventually respect such constraints as a fixed storage capacity or a fixed production capacity.

[6] Queuing theory is concerned with the operations of facilities for which the demand is randomly distributed over time and of which the output is subject to random fluctuations. Typical problems that have been studied include: (1) the determination of the optimal number of service facilities; (2) the determination of the optimal load for a service facility; (3) the sequencing of operations to be performed by service facilities.

[7] Replacement formulae aim at guiding investment and maintenance decisions in such respects as the timing of renewals and the selection of the most profitable investment alternatives.

Parts V and VIII are very poor introductions to the important theories with which they deal. The trouble lies mostly in the fact that too much space is devoted to computational aspects, whereas practically none is devoted to analytical results. For instance, Part V presents two alternative procedures for solving the transportation model, explains the simplex technique, and discusses in detail a method of solution for the assignment problem. Yet, no mention is made of the basic theorem stating that the number of "activities" in an optimal solution to a linear programming problem need not exceed the number of constraints.[8]

Part VIII contains a chapter on "bidding models" in which new material is presented with regard to a significant problem. The chapter deals with optimal behavior in auction and closed bidding situations. This is an interesting topic, but unfortunately its treatment is not very satisfactory, because it rests on highly unrealistic tacit assumptions, namely: that the probability of a particular closed bid being successful does not depend upon the amount of the bid (p. 564), or that the bids submitted simultaneously by various competitors are uncorrelated (p. 568).

Part VI (queuing theory) is probably the best of the book. It strikes an elegant balance between the conflicting objectives of theoretical considerations and empirical illustrations. This result is due in large part to Chapter 15, which reprints a "classic" of operations research: L. C. Edie's "Traffic Delays at Toll Booths." This paper has the further merit of going into the matter of estimation of cost parameters, making explicit the nature of the approximations used in the study.

Parts IV and VII (lot-size and replacement formulae) are perhaps best suited as indicators of where operations research stands today. On the one hand, formal solutions to many general problems have been derived. On the other hand, manageable solutions to special problems are available. It is left to the ingenuity of the researcher to reconcile as much as he can his idealized models with the situation he faces while still retaining the advantages of manageable models. In so far as lot-size and replacement formulae go, the book illustrates neatly the possibility of improving upon current business practices by means of analytical reasoning and numerical methods, and it implicitly stresses, for the benefit of the reader who has some knowledge of the field, the need for further theoretical developments.

There are several important results and theories which have not found place in Book II. The most obvious examples are: the theory of teams, the theories of employment and production scheduling over time, dynamic and nonlinear programming. In so far as problem-areas go, the main shortcomings are probably in the fields of organization and communication theories[9] and

[8] This is only intended as an example, typical of the main defects of Parts V and VIII. It is fair to add, however, that many operations research techniques, and linear programming in particular, are more powerful in securing numerical than in securing analytical results. This stems perhaps from the framework in which these techniques have been developed.

[9] These two topics are briefly discussed in Chapter 4.

financial analysis. The omission of the former area is justified by the fact that it would deserve another whole book by itself. That of the latter area is more regrettable, since "internal rates of return" are used in several connections in the book. No systematic approach to their determination is presented—for the simple reason that operations research has not yet studied this problem carefully. This is one area where joint work with economists is called for.

More generally, one may regret the lack of emphasis in the book on problems of parameters-estimation. Such concepts as costs, revenues, capacity, etc. . . . , play an important role in applied operations research studies. Their nature has always interested the economist, their determination the businessman. Both will, unfortunately, learn relatively little in that respect from the book under review.

This is not the place to discuss the important issues raised by the relations of operations research to economics; yet the book throws a vivid light on several aspects of that broad question.

First, although it is becoming clear that the methodology of operations research—with which this book deals in as systematic a fashion as is possible today—should not be of immediate concern to economists, operations research techniques are just as useful to provide microeconomics with empirical content as statistics is in connection with macroeconomics.

Second, although there is nothing in existing operations research results that contradicts directly the basic propositions of the theory of the firm, operations research theory and practice indicate strongly that the significance of these propositions is much more normative than descriptive—and familiarity with this new field makes an economist much more careful in his statements and applications of the traditional model. Qualifications to that model, aiming mostly at dealing with such constraints as joint costs, fixed factors, indivisibilities, capital rationing, etc., are likely to be emphasized in operations research work much more than they have traditionally been (with a few exceptions) in economic writings.

Third, the participation of economists in operations research studies, which is viewed by scholars coming from other disciplines as desirable and important, is likely to lead to significant new developments in economics. Not only will new models of the firm emerge, that will give more precise content and more realism to existing theories, but one may expect their implications for macroeconomics and for economic policy to fill important gaps in our knowledge.

Fourth, the applied operations research literature is a valuable source of information about business practice. The insights thus provided will be the more abundant the more those engaged in operations research will be interested in economic problems. As for the economist, he will find in the book under review an opportunity to assess the potentialities of operations research from the viewpoint of empirical information. For this reason alone, the book is a significant contribution to the economic literature.

Jacques H. Dreze

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Effects of Price Level Changes on Business Income, Capital, and Taxes. By RALPH COUGHENOUR JONES. (Columbus: American Accounting Association, Ohio University. 1956. Pp. xvi, 199. $4.00; paper, $3.25.)

This book represents an effort to pierce the veil of original cost accounting and to reveal what has happened to the income and wealth of business firms as a result of inflation. Its concern is to show changes in income and wealth by adjusting nominal wealth and income data for changes in the general purchasing power of money. Jones attempts to do this by "showing in abstract or mathematical terms what *necessarily* happens under different sets of assumed conditions " (p. iii, our italics). He does not use empirical data to *test* these implications; instead he selects four firms to *illustrate* his main points.

Jones shows that accounting conventions are blocking an understanding of what happens during inflation, and his attack on original cost accounting enables him to clear the way to better understanding. He correctly emphasizes a fundamental distinction that has been ignored in accounting practice: the distinction between monetary and real assets (or liabilities). Monetary assets are those whose prices are contractually fixed in money units, while real assets are those whose prices are not so fixed in money units but are market-determined. Thus bonds, accounts payable, or money, are money assets or liabilities; the number of dollars due or receivable is specified in the contract or in the asset. Jones asserts that monetary debtors gain and monetary creditors lose through inflation. He does not test this implication nor does he refer the reader to any evidence that supports it.

Furthermore, he deduces that business firms are much greater net monetary creditors than many of us have supposed. He deduces this by treating a large class of monetary debt as if it were *real* debt. In this way he underestimates the extent of monetary indebtedness of business firms. Paradoxically, the pitfall which has trapped Jones is his acceptance of accounting conventions which he initially set out to expose. This is his insistence on recognizing wealth increments only when realized at the time of a sale and conversion to money. Thus, he argues that it would be ridiculous for DuPont to recognize capital gains in the price of GM stock held by DuPont until these capital gains are realized by sale: "First, there is no intention to sell the stock. Second, it is unthinkable that a block of sixty-three million shares could be sold on the market at a price determined by the purchase and sale of a few hundred or a few thousand shares. And third, it is a convention of accounting not to recognize unrealized gains as income" (p. 27). It is indeed hard to expose errors in old conventions if one at the same time reveres them. And it is this dogma of realization that leads Jones into error when deciding which assets to classify as monetary and which as real. He classifies extremely long-term, or permanent monetary debt as real. There is no intention or possibility of retiring it now when prices have risen. Therefore the gains accruing to monetary debtors cannot be realized. Only short-term is a monetary debt because only it is realizable during inflation. This means that long-term debt and preferred stock must be treated as nonmonetary debt. Hence the extent of monetary debts of business firms is underestimated; which leads to his conclusion that holding common stock is

much more like holding bonds than many of us had supposed. Jones offers no empirical evidence to test that implication, nor does he refer to available evidence.

Income tax laws require a treatment of depreciation that overstates taxable income during inflation. Jones is clearly aware of this. But in his illustration of this point he makes another error which again overestimates the extent to which a business firm is a net monetary creditor—that is, holds more monetary asset claims than monetary debts. He writes:

> Assume that an asset installed at a cost of $100,000 has a service life of ten years with no scrap value and that it produces annual revenue of $20,000 before deducting the depreciation charge of $10,000. If the value of the dollar remains constant, half the revenue each year will represent a return of capital and the other half will be net income. According to accepted accounting practice this will be true even though the replacement cost of the particular asset may rise or fall. Suppose, however, that the dollar loses half its purchasing power every year. This extreme rate of loss is assumed merely to make the computations easy. If conventional accounting practice is followed, half the annual revenue will still be reported as a return of capital and half as net income, even in this extreme case. In terms of real capital or purchasing power, the relationship between revenue and depreciation quite obviously is very different. It takes all and not merely half the revenue of the first year to return the purchasing power equivalent of the capital exhausted. During the second year the total revenue is equal to only half of the purchasing power represented by the depreciation charge (P. 46).

Jones seems to have assumed that the value of the output of the machine is independent of the price level. He therefore treats a real asset as if it were a monetary asset. This overstates the magnitude of monetary assets of the firm. Both of his analytic errors lead to overestimates of the net monetary asset status of the firm.

Inflation raises market value of assets over their book value, a point which Jones occasionally neglects. The economic value of used assets, for which the gap between market and book value has widened, is greater in the market than it is for the original user. This is true because new users can depreciate on the basis of market price not original cost. This has been of considerable relevance for business policy in recent years and must have had some role in creating purchases and sales of assets that would otherwise not have occurred.

From the point of view of the Treasury, assets can only be depreciated on the basis of original cost. However this does not imply that stockholders lose the difference between the purchasing power of the dollars originally expended and the purchasing power of the dollars "realized" through depreciation allowances. Clearly the replacement of assets must be economically justifiable by a rate of return after taxes based on current costs. But the costs of new and second-hand assets are related. Therefore if the stock of capital is maintained, this implies that the yield on old assets must be related to their current values as agents of production, not original costs. This means that the yield of these assets, out of which depreciation allowances are "realized" must be larger

than it would have been in the absence of inflation. Therefore the money available to be set aside is larger.

In the second and third parts of the book Jones illustrates how corporate income accounting based on original costs for real assets and inventories leads to overestimates of current profits and taxable income. He illustrates this for various rates of inflation, permissible depreciation policy and growth rates of the firm.

One of Jones' four firms which he investigates to illustrate his analysis is a public utility. He argues that its rates are set on the basis of original cost rather than replacement cost. Therefore although this utility has an enormous debt, the stockholders are not allowed to keep the wealth lost by the bondholders, because these gains are transferred to the public utility's customers via prices that are lower than costs. He describes this case by creating the classification of quasimonetary assets which are assets that are real but which are monetary from the point of view of their yield. This makes inflation a negative sum game between creditors and debtors and a positive sum net gain game for public utility customers. It seems more direct to say not that stockholders do not gain at the expense of bondholders, but that the public utility commission does not permit them to keep the gains. This argument is not applicable to nonrate-regulated industries.

His main recommendations are that business firms should classify their accounts in balance-sheet reporting into monetary and real accounts. This is indeed a sensible but possibly premature suggestion. Greater conceptual clarity and empirical validation would be helpful. He also recommends that depreciation accounting be based on replacement costs and offers suggestions as to how this could be done. In sum the author has tackled an important problem, he has perceived an important distinction in asset classification, but accounting conventions have been given too much reverence. The consequent mixture of penetrating insight and economic analytic error is a bit disturbing to the careful reader. Of primary critical importance however is reliance upon assumption and logic to derive implications that, with actual data, are illustrated instead of tested.

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Price Level Changes and Financial Statements—Case Studies of Four Companies. By Ralph C. Jones. *Price Level Changes and Financial Statements—Basic Concepts and Methods.* By Perry Mason. (Columbus: American Accounting Association, Ohio State University. 1955-1956. Pp. 179; 28.)

These publications of the American Accounting Association, together with *Effects of Price Level Changes on Business Income, Capital, and Taxes,* by Ralph C. Jones (also reviewed in this issue, p. 1051) are the product of four years of research into the effects of general price level changes on reported business capital and income and represent essentially three facets of the same

theme so are treated in this review as one work. Their objectives were to: (1) develop techniques for preparing supplementary financial statements expressed in constant-value units; (2) compare the results of uniform-dollar statements with conventional, historical-dollar statements for specific firms; and (3) provide information for evaluating uniform-dollar statements. In seeking to meet these objectives they have essentially followed the path identified with H. S. Sweeney whose book *Stabilized Accounting* (New York, 1936) recommended converting each account into current values by means of a general price index. Sweeney's work, in turn, was based on his study of German methods of accounting during the inflation of the 1920's. The publications here reviewed have carried the uniform-dollar approach far enough to provide a basis for evaluating the index-adjustment solution to the problem of business financial reports in a world of changing monetary values.

In brief, the authors are concerned with the fact that reported business income is the difference between sales—stated in fairly current dollars—and expenses which are partly (especially depreciation) measured by dollars of earlier periods. Also, the balance sheet contains accounts that may be dollar-dated over a range of 20 years or more. As they point out, this is analogous to adding amounts stated in pounds, pesos, and francs to amounts in dollars without first converting the foreign currencies by appropriate exchange rates.

The solution proposed in these books is to adjust all accounts in the income statement and balance sheet by an index number representing the general price level (the consumers' price index is recommended), with the most recent period as the base. Each account is multiplied by the index value that is chronologically appropriate. A building acquired 5 years ago would have a different adjustment factor than a 10-year old building, and the depreciation on both would be adjusted accordingly. Thus income statements and balance sheets would be reported as if the dollar had always been at its most recent value.

The major conclusions from their case studies and theoretical analyses are these: (1) Fluctuations in the price level, *e.g.*, the substantial inflation since the late 1930's, considerably impair the usefulness of financial statements based entirely on historical costs. (2) The major discrepancy between net income reported by historical-cost methods instead of current dollars arises from the difference between depreciation based on original cost in historical-dollars compared to current-dollars. (3) Because depreciation deductions are limited, for income tax purposes, to original cost in historical dollars real rates of taxation are raised above nominal rates during and after periods of inflation. (4) Management and investors are unlikely to realize, as accurately as they would if they used adjusted figures, that inflation makes a substantial part of reported earnings (based on historical dollars) fictitious in a real sense; as a result management is likely to distribute through dividends part of the company's capital.

With most of the conclusions economists are familiar; for example, the role of inflation as a tax collector. However, the careful analytical and inductive research in these studies provides further support for their beliefs. One con-

clusion, however, will seem surprising to economists who believe that creeping inflation is generally helpful to business firms since sales dollars measured in current prices are matched against expenses incurred during previous periods of lower prices. If the samples studied in these reports are representative, business firms even during the exceedingly prosperous period of the 1940's, failed to earn, after taxes, as much as 5 per cent on investors' equity measured in real terms. It is worth questioning whether business firms can long continue to attract risk capital if the real rate of return remains so low.

The studies raise several questions, all of which are at least partly answered by the authors. Should all firms' accounts be adjusted by a common index, measuring the general price level or should different indexes apply to different companies and different products? If a common index is used, should it be the consumers' price index, the wholesale commodity price index, or the gross national product price deflator? Should purchasing power gains (or losses) on either monetary investments or nonmonetary investments be taken into consideration even though unrealized?

One of the most fundamental questions is only implicitly raised. If the accepted accounting practice of using historical costs is abandoned, accountants could move to the half-way station described in these books, where the historical-cost approach is followed but the accounts are measured in a constant-value unit, or they can go further and adopt the economic view that the true worth of assets is the present value of their discounted future earnings. Conceptually this latter position is the more tenable, but accountants are understandably reluctant to use it since it involves so many arbitrary estimates. However, the constant-dollar adjustment device, when carefully observed, involves so many acts of judgment that it seems to be as susceptible to this criticism as the more extreme present-value approach, in which case the economic logic of the present-value approach might argue for its adoption if accountants are ever to abandon the present historical-cost method.

Since management is presumably striving to maximize profit regardless of the value placed on the profit, the question arises whether uniform-dollar accounting is any more useful in helping management make good business decisions than historical-cost accounting. It might seem that management's position is analogous to the bridge-player who will play his best whether the stakes at the end of the game are announced to be a penny or a half-penny a point. But Jones and his associates report that they found management decisions on such things as the amount of dividends, the price charged for the product (especially in regulated industries), and capital structure were influenced by the numbers reported in accounting statements. Therefore, it seems that, for management purposes, adjusted financial statements would be useful if for no other reason than to alert the executives to the limitations of accepted accounting reports.

Finally, these studies raise a serious question about the level of the corporate income tax in real terms. During and after inflationary periods it is higher than the nominal rates; the opposite being true for deflation. The implications of this involve consideration of stabilization policy, growth

policy, and government fiscal matters that clearly deserve more attention. It is to be hoped these studies will encourage and provide part of the foundation for such tax analysis.

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Analysis for Production Management. By E. H. BOWMAN and R. B. FETTER. (Homewood, Ill.: Richard D. Irwin. 1957. Pp. xiii, 503. $6.50.)

We are often advised to do good, rarely how to do good, or even what good to do. Many would prefer to do well, but this know-how is perhaps as elusive as the other. In recent years, work in economics, applied mathematics, statistics, operations analysis, management science and related fields has been directed toward producing know-how about what and how to optimize. Those interested in doing well do well to pay attention to these developments. The book under review is a text designed to present some of this recently developed how-to-do-it information to students of industrial management or industrial engineering. It is, as far as I know, the first of what is sure to be a long series of books of this general kind. As harbinger of the coming season, it perhaps deserves special notice.

The book is aimed at students who have had an introduction to calculus, a course in statistics and a course in mathematics. Students who have had these courses, and remember no more of them than students generally do, should have no special difficulties because of deficiencies of background.

The book is devoted to the application of formal analytical methods to the problems of production management, rather broadly conceived. The aim is to present methods rather than theory, and consequently the emphasis is on elucidating the methods and their uses, rather than on including many "methods" in a single generally stated type of analysis. Thus, one finds something called "Total Value Analysis" and something else called "Incremental Analysis" presented as two different methods. The distinction between them is that Total Value Analysis involves maximizing some quantity such as profit by solving the equation obtained by setting its derivative equal to zero. The corresponding "Incremental Analysis" problem involves equating the derivative to zero directly without considering the function whose derivative it is. The authors, of course, suffer from no confusion about the relationship between these two types of analysis; they evidently prefer to distinguish them as methods of analysis because they involve different concrete procedures when applied to a particular problem. This point of view may seem strange to theoretical economists, but it is widely held by students and particularly cherished by engineering students. On the other hand, economists are likely to find congenial the extensive use of examples, including numerical examples, as vehicles for presenting the methods. These presentations are simply, directly and clearly written, though economists who suffer from terminological chauvinism will find small annoyances here and there.

The book contains four main blocks of material. The first, called *Orientation,* tells what production management is all about, presents *dicta* on scientific

methods and gives an account of the standard graphical and schematic methods used by industrial engineers. This section occupies about 80 pages, of which about 40 deal with the engineering methods. In view of the spirit of the subsequent material it may be conjectured that this was included *"pour épater le bourgeois."*

The second major section presents mathematical programming methods. An exposition of the linear programming model and simplex method of solution is given; the special case of transportation problems is presented. The authors also give a brief introduction to dynamic programming in an example with discrete time. Some 70 pages are devoted to these subjects.

The third major subdivision includes statistical material. Sampling inspection and quality control are treated rather thoroughly as well as certain subjects involving the analysis of variance. Some 65 pages are devoted to this material.

The fourth main section is called *Economic Analysis* and includes "Total Value Analysis," "Incremental Analysis" (already referred to above) and "Equipment Investment Analysis." The examples include the so-called economic lot-size problem, an inventory problem and a waiting-line problem. Some of the problems involve uncertainty. There is then a short discussion of the use of Monte Carlo methods, illustrated by a problem of maintenance policy. The final chapter of this section treats equipment replacement and presents the standard Lutz-Preinreich-Terborgh treatments. The presentation is clear and direct. The inadequacies of this mode of approach to the problem are not to be charged against a textbook in which they are correctly presented as the best available methods. Perhaps the authors are wise not to fill the air with qualifying remarks concerning the theoretical adequacy of these methods. Students display a deplorable reluctance to devote hard effort to the mastery of useless things, as well as a tendency to leap like grasshoppers to the nearest visible conclusion.

A collection of ten "cases" occupies the final 120 pages of text. Each case is a story of a business situation, told in great detail and with an effort to achieve realism. The case method and case materials are not widely used in the teaching of economics and so perhaps deserve an extra word here. These cases are presented so that the reader may see in the natural habitat instances of applicability of the methods presented in the text. The use of cases, as distinguished from the problems, or exercises, found at the end of each chapter in the text is, one imagines, designed to encourage the reader to acquire a sense of the chaotic complexity of problems as encountered in the raw. This experience (perhaps it should be called shadow-experience) will, it is hoped, save the neophyte from mental paralysis in the face of a real live "case." Real cases are required on the ground that "only God can make a tree." Whether a stiff workout with stuffed animals will enable the trainer to deal more effectively with the raging lions is difficult to say. The effectiveness of the cases in this book will depend to a great extent on the students who use them. My own opinion is that they are likely to prove useful. Cases are different from mere problems and supplement them rather nicely in connection with

material of the kind presented in this book. Teachers of economics might do well to make more use of this kind of material.

The book concludes with some 30 pages of appendixes, including reprints of statistical tables useful in connection with the text.

In a market economy there is, perhaps, no higher praise to be offered to the authors of a commercial textbook than to adopt it for classroom use. I intend to try this one myself.

STANLEY REITER

Purdue University

Marketing Behavior and Executive Action—A Functionalist Approach to Marketing Theory. By WROE ALDERSON. (Homewood, Ill.; Richard D. Irwin. 1957. Pp. viii, 487. $6.50.)

Once in a while an author produces a book which is one of those happy marriages of information and insight. This is such a book. Alderson's keen observation and analysis of contemporary marketing theory and practice stamps this book as an outstanding performance. In fact, its very vitality makes it hard to confine the volume's ideas within the compass of a brief review, and consequently the present discussion may convey only a fragmentary notion of the book's worth.

Most salient is the freshness of the approach. It is an eclectic one in the best sense. Alderson combines psychology, economics, sociology, marketing, etc., both illustratively and substantively. He gives this approach a new label —Functionalism—not precisely distinguished, but why cavil? Distinguishing his approach from the more traditional commodity and institutional approaches of marketing theory, Alderson defines his functionalism as "an aspect of a general theory of human behavior" (p. 24). For Alderson, marketing is an organized behavior system with patterns of power and communication, inputs and outputs and internal and external adjustments. This is indeed almost a sociology of marketing. These ideas are first examined in the preliminary chapters which relate marketing to the other behavioral sciences, and represent an attempt to establish the rationale of the functional approach. In Part II, the heart of the book, Alderson applies the conceptions developed in the opening chapters. Part II is captioned "The Theory of Market Behavior," and it can be summarized by using his own words (p. 99):

> The functionalist approach to *competition* emphasizes rivalry within and among behavior systems in the search for differential advantage. *Negotiation* is a major topic in the present view, accounting for what may be called the vertical relationships of behavior systems as compared to the horizontal relationships constituting competition. The treatment of *consumer motivation* takes the household as the fundamental unit and considers aspects of its structure and functions which determine the course of consumer buying. The discussion of *exchange* describes the four aspects of *sorting* which produce economies in matching supply and demand. *Price* is discussed in terms of the uses and limitations of the marginal analysis. Some basic problems of *price policy* are also discussed, including the overriding problem of maintaining an integrated price structure. The possibilities of creative marketing in stimulating demand are considered

with respect to such processes as product *innovation and advertising.* The *market transaction* is analyzed to show how it has been modified to increase marketing efficiency. Finally, the *dynamic character of modern markets* is shown to rest on competitive efforts at market organization. (The italicized phrases indicate the subject matter of the eight chapters comprising Part II).

It can be seen from this, that this book attempts to recast marketing theory into a new mold. There is a profusion of novel insights into economic and marketing problems. For example, in discussing bilateral monopoly Alderson declares that agreements between manufacturers and distributors might well be productive of low prices to consumers rather than high prices as postulated by orthodox theory. In fact he states that he "has yet to see any real cases which would support the theoretical possibility . . ." (p. 135). At another point, in analyzing what he calls "Matching and Sorting: The Logic of Exchange," Alderson contributes the interesting notion of technological distance between producer and consumer. This is the idea that goods are assorted (or matched) in accordance with market functions, each stage of the market producing different assortments, and the whole tied together into a smoothly functioning system by the channels of marketing (pp. 215-16). Many other illuminating ideas could be cited.

Of greater interest to economists perhaps, would be Alderson's discussion of marginal analysis, indifference and substitutability (Ch. 8). The theoretical level is neither high nor rigorous, but it must be remembered that this is a textbook in an applied field. This is not intended to belittle nor excuse. Alderson's superior gifts of analysis and perceptive insight are evident on every page. In fact, perusal of even the brief critique of marginal analysis in the work may yet serve as a useful reminder to those theorists who, enamored of the logic of the graphs and equations they develop, come to believe that human beings may actually behave in accordance with their devices. Alderson comments: "Marginal analysis applies to elements which can somehow be reduced to a common quantitative basis. When this cannot be done, there are key management decisions which lie beyond the reach of the marginal approach" (p. 244).

What does all this lead to? Part III attempts to furnish the answer. In this section, the previously developed concepts are utilized for the purpose of providing a guide to executive action in the market place. The final chapter, for example, evaluates such matters as the marketing approach to quality control; marketing analysis and organization problems; marketing and investment planning. In the closing pages of this chapter, however, Alderson philosophizes concerning the forces of change within our economy and our society. Here he is less successful than in the technical areas of discussion. In detailing the fate of our economy according to Marx, Schumpeter and Charles F. Roos (an interesting trinity!) he is somewhat diffuse and lacking in the bite and clarity which characterize the remainder of the book. It is possible that the mechanics of textbook production required its inclusion, but it is obvious that a subject of such magnitude cannot be adequately treated in a few pages relegated to the end of the book.

Summing up, there can be no question that this book is worth many times

the price of admission, and as a text in marketing theory it is far superior to practically all that have gone before.

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Industrial Organization; Government and Business; Industry Studies

The Politics of Industry. By WALTON HAMILTON. William W. Cook Foundation lectures 1955. (New York: Alfred A. Knopf. 1957. Pp. xvi, 169. $3.50.)

In recent times, as economists have become increasingly concerned with respectability, it has come about that some of the older generation seem very young in their surviving criticism and complaint, just as some of the younger seem very old in their amiable conformity. Walton Hamilton is less young in years than others. This book is based on lectures given at the University of Michigan where he studied under Fred M. Taylor, Henry C. Adams, and others when the century was still new. But throughout there is a fine, youthful exuberance which manifests itself in repeated assaults on the more comfortable *clichés* of free enterprise and a marked conviction that the economic world could still do with some remaking. The essays are also both lucid and learned as befits a man who has combined a career as lawyer, public servant, economist, and instructor in medieval history. They are spiced with gay and wicked humor—he has Adam Smith observing that lawyers do not meet, even on the most innocent of occasions, without causing an increase in the price of retainers—and are altogether a delight.

The author begins by attacking the notion that a sharp line divides the sphere and functions of the private firm from that of government—a notion that is at once so oversimplified as to be all but simple-minded and that rules in at least nine-tenths of our economic and political comment. For while the professional business orator proclaims the need for preserving the integrity of private enterprise in face of the inroads of public authority, the private corporation has long been occupied in appropriating the authority of the national state for its own purposes. It is Hamilton's view that this tendency is proceeding at an accelerating rate and that we are by way of having a rebirth of the "honorable" trading company which reinforces ordinary functions with a *de facto* grant of public authority. The several lectures are concerned with various ways in which this power is won—by having control of the public regulatory process, as the railroads have, if not controlled, at least profoundly influenced the Interstate Commerce Commission; through skillful manipulation of the patent law; through international operations that, in effect, transcend national authority; and in many other less portentous ways.

This description is the heart of the book. Through it runs a strong undertone of criticism—the sense that these things shouldn't be. And in the last chapter the author has a few things to say about what might be done. Since he has already shown that the regulation of the regulators is an admirable device for

turning public power to corporate purpose, he is a little handicapped when it comes to urging stronger government regulation. He has a nostalgic affection for the antitrust laws, but he is too realistic to regard the courts as an instrument of sweeping reform. And so it transpired that the author left Ann Arbor without offering any very solid proposals about the things that give him discomfort. That is a fault, but not a fatal one. As an assault on pompous simplification this is more than a day's work.

J. K. Galbraith

Harvard University

The Cotton Industry in Britain. By R. Robson. (London: Macmillan & Co., Ltd. New York: St. Martin's Press. 1957. Pp. xx, 364. $10.00.)

This completely informed account of an historic industry—its organization, recent trends, and prospects—is by the Director of Statistics of the Cotton Board, Manchester. It is of peculiar and immediate value to the trade, whether in Britain or in other countries where textile manufacture is established or contemplated. Besides this specialized use, the work has significance for international economic policy in many departments. While the complications of the subject are recited, analysis leads to judicious conclusions which deserve to be pondered in industrial and official quarters. Statistical exhibits clarify, do not clutter.

World developments in the period embracing the two wars and coming to the present are illustrated in this appraisal of the mistress of manufactures. Agriculture, finance, commerce, labor and standards of living in remote places are tied into the problems of Lancashire. This will remain true because, as this study is the latest to confirm, distance of cotton factory from cotton field is relatively unimportant. Since cotton, once ginned, involves little waste in fabrication, nearness of mill to market may balance the advantage of proximity of another mill to raw material.

What may be called the textile complex is here explored—the advent of synthetic fibers as competitors and as complements to cotton. The benefits and perils of integration, particularly vertical integration, under a single-firm are examined in a fashion meaningful for the United States where the project of combining every process from cotton to final customer of cloth has had a whirl. Productivity trends are explained, with assignment of causes and consequences.

The last chapter, on "The Future of the Industry," will attract the eye of every reader. This is projected against a background of declining percentage expenditure on clothing, due to income changes, increasing age of the population, high prices, and the attraction of other consumer goods in greater variety than formerly. The production of household textiles has likewise declined. Fortunately, industrial uses demand a volume three times that of forty years ago. As the textile industry, technologically mature, may be easily established anywhere, it tends to drift to low-wage areas which begin to supply their own home markets and enter export as well. For this reason lagging productivity in the British industry gives concern. Mr. Robson is sure that protection is required, but also urges that concentration and a high degree of specialization,

serviceable in the past, may be detriments to new ideas and new entrants which a more decentralized industry may provide.

BROADUS MITCHELL

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Concentration in Canadian Manufacturing Industries. By GIDEON ROSENBLUTH. (Princeton: Princeton University Press, for National Bureau of Economic Research. Pp. xv, 152. $3.50.)

Just as the cover of a book may be misleading so may its title, and it is a common experience to feel that an author has cheated by promising more in the title than the contents deliver. Rosenbluth's book reverses this and contains considerably more than is implied in the title. His study, which started out as a Columbia doctoral dissertation, turns out to be not only a compilation of the Canadian figures on manufacturing concentration ratios but also a study of the forces making for high and low concentration ratios. It is this latter aspect of the book that gives it generality beyond its title and justifies the fly-leaf claim that it "should interest not only those concerned with the problems of concentration and monopoly, but also students of firm size, economies of scale, industrial growth trends, the relation between plant and firms, and other aspects of industrial structure."

The major findings on the causes of high concentration are that it is a matter of big firms, in small industries, producing products having relatively low transportation costs, and a high capital-labor ratio. It should be noted that size of firms is more important in causing high concentration than inequality of firms size. The finding that the larger the industry the lower the concentration raises the question of whether or not industry growth generally brings with it a decrease in concentration. It also brings up the question of whether the definition of industry is consistent. Is a smaller industry one that has a finer classification of product?

On the question of differences between plant and company concentration Rosenbluth found that large companies were more apt to have multiplant operations and their plants were apt to be larger as well. The existence of multiplant operations reflected either transportation barriers or mergers.

A comparison of 1947 data on U.S. industries with the 1948 Canadian data finds that in general the pattern of concentration is very similar but the Canadian industries are more concentrated. This is of course consistent with the importance of industry-size as a concomitant of concentration.

An analysis of time trends in concentration was handicapped by a lack of data. There were figures on over-all concentration in output and employment on a plant basis going back to the early 1920's. Rosenbluth did what he could to separate the shifts in the relative importance of concentrated industries from the shifts in concentration proper but the results are sketchy. They support the optimistic view that the growth of the market proceeds faster than the technological and other forces making for larger plants, and that consequently the average level of concentration in industries has probably decreased with growth. The wartime "increases" in concentration seem to have been connected

with shifts in the relative importance of industries. This subject of growth and concentration needs further exploration with better statistical sources.

No attempt has been made in this review to cover the research methods used. There is some methodological novelty but for the most part the work represents a careful study using standard techniques. One is tempted to comment that our profession needs more of this type of solid scholarly work and less of the grand argumentative discourses. This book, without question, adds to our store of knowledge and deserves a wide reading.

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United States Shipping Policy. By WYTZE GORTER. (New York: Harper Brothers, for Council on Foreign Relations. 1956. Pp. xx, 230. $5.00.)

This book is the product of extended and comprehensive study by a competent student of the problem. It deals with the development and present status of the maritime industries, including shipbuilding and ship operation.

The policies of the federal government, both historically and current, affecting these industries are dealt with at two levels: analytically to give the reader a complete background of the origin and development of the policies, and critically as a basis for the author's suggestion as to revisions of policy which might be better designed to achieve the state goals of national policy in this field.

The central core of the problem with which Gorter deals is reflected in the fact that the United States shipbuilding industry has been rescued twice from near extinction by large-scale war. Of the total output of ships from U. S. yards in the 41-year period 1914 to 1955, 86 per cent was produced in the nine years, 1917-1920 and 1942-1946.

The two fundamental problems in this area of national policy and action with which legislators have been attempting to deal and for which they apparently have not yet found a satisfactory solution are: (1) how to maintain a merchant fleet, either active or in storage during interwar periods, of sufficient size and quality to avoid the hastily improvised and costly construction to meet the exigencies of war conditions—characteristic of two past experiences, and (2) how to maintain during "normal" world conditions, a U. S. flag merchant marine adequate to meet the assumed or real needs of American shipping at the lowest economic cost to the nation.

There are three basic components of stated national policy designed to achieve these objectives, and two subsidiary lines of action or policies which have a bearing on the effectiveness of basic policy. Gorter's book describes in detail, both analytically and critically, each of these policies, and makes the following general findings and conclusions:

1. *Assistance to Shipbuilders.* Gorter critizes the present policy on the following grounds: (a) It has not been so applied as to support the required minimum of shipbuilding facilities for military requirements. (b) The present policy unwisely links the problems of construction and disposal. Since the Maritime Administration holds a large number of reserve ships and since the

peacetime demand of American operators usually is not sufficient to maintain the essential nucleus, helping operators is not the best way to sustain the shipbuilding industry. (c) As an essential defense industry, shipbuilding should not depend largely upon the availability of private capital. The government should use the subsidy program to make up the difference between private orders and the essential nucleus of shipbuilding. If domestic ship orders exceed the national defense level, surplus orders to foreign yards should be allowed without American ship operators losing the benefit of the operating subsidy.

2. *Ship-operating Subsidies.* Based on available figures of military requirements, Gorter concludes that in spite of the subsidy program the tonnage of merchant shipping falls short of satisfying the minimum defense needs by about 2 million deadweight tons, or about 1/5 of the active U. S. merchant marine. The commercial results of the operating subsidy program are not precisely determined, but probably it has improved the quality of the merchant marine. The cost of subsidies is modest in comparison with total government expenditures, vessel operating revenue and vessel operating expense, but is large compared with the net operating profits of American operators. Subsidies are relatively inoffensive to foreign operators, are unlikely to invite retaliation, and retain the competition of the conference system. Gorter concludes that granting operating subsidies on essential routes leaves a substantial area of shipping to private competition free of government subsidies and is preferable to a general navigation bounty.

3. *Cargo Preference.* The cargo-preference policy is of vital importance to ship operators, particularly to U. S. tramp operators. The present tramp fleet is to a great extent a creature of the 50 per cent provision. U. S. tramp operators cannot compete effectively with their foreign counterparts because of high costs. The advantage of tramp shipping is its usefulness to the military. Trampers are flexible; their crews have wide experience. Most tramp ships, however, are liberty ships having large deadweight capacity but speeds (10 knots) dangerously slow for convoy operations. The government might more cheaply modernize reserve libertys—and at the same time give some aid to U. S. shipbuilders—than retain cargo preference to keep middle-aged obsolete tramp vessels in operation.

Subsidized liner companies favor cargo preference, which they allegedly need for adequate revenue. They state that without cargo preference most aid cargoes would move in foreign flag vessels to save dollars and that discrimination against U. S. flag vessels by foreign countries would become intolerable without cargo preference. Gorter opposes this argument. Cargo preference itself, he says, is a form of discrimination, and the best way to remove it is through negotiation rather than through counterdiscriminatory measures. The elimination of cargo preference, Gorter suggests, might hurt foreign-trade liner operators less than their unsubsidized U. S. flag competitors.

Generally, Gorter concludes that cargo preference is inconsistent with the general aims of U. S. foreign economic policy and that it cannot be defended as an economical way to build up a nucleus merchant marine for national defense. The effects of eliminating cargo preference legislation, however, should be evaluated in the light of defense requirements.

4. *Shipping Conferences.* Gorter believes that present policy is "best" in that it requires open conferences and fair rates without damaging our relations with other nations.

5. *Military Sea-Transport Service.* In view of national defense requirements, the government must operate a fleet over which it has full control, without danger of interruption from labor disputes or other sources. The MSTS policy of making full use of cargo space aboard its own vessels—rather than dividing shipments between MSTS and American private vessels—is economically defensible.

Gorter suggests the possibility of allowing greater use of foreign carriers, particularly of NATO country flag vessels, to reduce the cost of military shipping, to increase the strength of NATO countries, and as a bargaining tool to offer foreign nations advantages for which the United States may negotiate diplomatic concessions.

Undoubtedly, some students of this problem will find that Gorter's analysis emphasizes "internationalism" to the extent that, especially with reference to the "cargo preference" issue, it would appear to give heavier weighting to the objectives of international diplomacy than to the real or assumed economic interests of U. S.-flag vessel operators. Gorter's book, however, represents the most comprehensive analysis of this highly controversial and important phase of national policy; it is well organized, well written, and is a scholarly treatment of the subject.

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The Economics of European Air Transport. By Stephen Wheatcroft. (Cambridge: Harvard University Press. 1956. Pp. xxii, 358. $6.00.)

This book is, in the judgment of the reviewer, the best economic analysis of air transport which has yet come into print. Mr. Wheatcroft's study reflects the environment of the European air carriers, many of which have problems—notably political—fortunately not encountered by domestic carriers in the United States. Nevertheless, the analysis is so basic that it can well serve as a guide to understanding the economics of air transport in any part of the world. In fact, students of American air transport economics would do well to look to this book for such guidance.

Wheatcroft has made a careful study of European air transport operations outside the Iron Curtain, and has drawn heavily on studies made both in Europe and the United States, particularly by the Air Research Bureau, a research organization sponsored by six major European carriers. He has also used effectively operating and financial statistics of individual airlines, government agencies, and such international air transport associations as the International Air Transport Association and the International Civil Aviation Organization. Because of the author's training in economics and experience in the airline business and in the International Air Transport Association, his research has resulted in a clear, accurate, and incisive analysis of the economics of air transportation.

One part of the book deals with the European airline industry, with particular reference to the economics of short-haul air transport, which is so characteristic of European air transport operations, and its effect on economics of aircraft size, operational efficiency and costs, and rate structures. The second principal part of the book describes and analyzes the problems of competition and regulation, especially the problems created by the fact that most free European air schedules tend to be international in a geographic and traffic area smaller than the United States. The third part of the book summarizes the problems involved and offers various requirements for air transport progress. Wheatcroft concludes that the possibilities for lowering costs, increasing traffic, and strengthening European air transport depend upon greater government and airline cooperation in this market. In fact, he finally recommends a regional organization for European Air Transport in the form of an effective and strong European Civil Aviation Conference, an organization toward which a start was made as the result of the Strasbourg Conference of 1954.

From the standpoint of the economist, the first part of the book will provoke the greatest interest. Wheatcroft outlines and supports with data some rather significant economic principles of air transport. Since European stage lengths are approximately 250 miles, the suitability of an airplane for European operations must rest very largely on its ability to operate efficiently at these ranges. He finds most aircraft in service are designed to operated most efficiently at much longer ranges, although competitive factors, under which large airplanes are more attractive to passengers, explain in part the reasons for this inefficiency. However, Wheatcroft properly suggests that large airplanes could be designed for the short-haul market and these, by utilizing payload for passengers instead of fuel, would be very much more efficient.

The author also concludes that the higher costs of European air transport operations as compared to American experience arise not so much from the short hauls themselves, particularly if a suitable large airplane were to be designed, but rather from the low intensity of operations. Moreover, the problem of intensity can be changed by economic regulation, the implication being that joint political action of the countries of Europe might both limit the number of carriers and the proliferation of routes, and also might remove some of the political restrictions which make it impossible for most European airlines to operate unrestricted frequencies.

In his analysis of the size and efficiency of airline operation in Europe, Wheatcroft found in Europe what has been found by the reviewer and others in America. While there may be considerable differences in efficiency between the very small and the larger carriers, there is evidence that the economies of scale are fairly early offset by diseconomies of size, and the over-all cost curve tends to flatten beyond the scale of output of the medium-size airlines. This would indicate that profitability tends more to be associated with frequency of flights and density of traffic. This finding argues, as Wheatcroft points out, toward some control of number of companies to eliminate the very small airlines, but does not support the proposal often made in Europe that there be a single amalgamated airline.

Wheatcroft finds increased support for cost reduction as the salvation of the

European airlines when he turns to his analysis of fares. In terms of existing costs, he finds that these airlines, especially with the increase in tourist traffic and decrease of fares, have underpriced their services. But, when compared to the cost of European surface carriers, the air fares are still too high to compete effectively for the mass market. Thus, despite the natural tendency for governments (which subsidize or support most European airlines) to conclude that the way out of a loss situation is to raise fares, Wheatcroft comes to the sound conclusion that the solution lies in intensified operations at lower costs and lowered fares.

On the basis of his analysis, Wheatcroft concludes that some reduction in airlines and route operations is necessary to get greater intensification of traffic and that more attempts should be made both by governments and the airlines to cooperate in planning, investment programming, use of station facilities, passenger handling, and other areas where individual duplicated operations are inefficient. He believes that much of the answer for economic health of the European airlines is a kind of cartelization of air transport under a central regulatory agency with powers to effectuate unified route and service planning and to encourage or enforce coordination.

While this kind of united effort in Europe might solve many of the problems Wheatcroft so ably analyzes, this reviewer is not as happy with his program as with his economic analysis. One of the primary reasons why European air transport costs are high is the common international practice of limiting frequency of flights between key centers. This practice seems to be based upon the idea that the transportation market is a piece of pie to be cut up and distributed. It overlooks the fact, which the American airlines have found, that increased frequency of operation reduces costs which in turn makes possible lower rates, and this, in turn, along with the convenience of high frequency, makes for higher traffic densities. One cannot help but be disappointed that an exceptionally able economic analysis comes, to some extent, to the conclusion that increased regulation is a better medicine than increased freedom.

HAROLD KOONTZ

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International Civil Aviation Organization. By JACOB SCHENKMAN. (Geneva: E. Droz. 1955. Pp. viii, 410. 40 sw. fr.)

The student of air transportation, international economic organization, or political science will find Captain Schenkman's study of the International Civil Aviation Organization a scholarly piece of research, rich in information on this interesting experiment in international governmental cooperation, and thorough in its treatment. Undertaken under the auspices of the Graduate Institute of International Studies in Geneva, the study is primarily historical in nature, although the author does deal in detail with the anatomy and physiology of this aviation agency of the United Nations Organization. While the emphasis of the research is primarily on the history and nature of ICAO, some attention is given to technical and economic problems of international cooperation in aviation. At the same time the book would have been more valuable had the author utilized his vast research to make more analyses of

the problems involved and draw sharper conclusions of use to those studying international cooperation and internation aviation.

Of the three parts, the first is a political history of international civil aviation, with particular reference to the international conferences, commissions, and other agencies which treated civil aviation prior to the establishment of ICAO shortly after the end of the second world war. The author skillfully brings together the many diplomatic experiments designed to effectuate international cooperation in the air and provides an excellent summary of the Chicago Conference on International Civil Aviation in 1944.

The second part of the book deals with the evolution, nature, structure, and functions of the International Civil Aviation Organization. This agency, which came into permanent being in 1947, is a kind of United Nations for civil aviation and has had an extraordinarily important role in developing rules and mechanisms for assuring safe and effective international civil aviation. While its influence has been felt primarily in the areas of safety, operating practices, and air navigation services, it has had some impact on air transport economics, but this has been primarily through the provision of international machinery for effective and safe air operations.

The third part of the book describes and, to some extent, analyzes the work of ICAO in the technical, economic, and legal fields. Schenkman has succeeded well in summarizing a large volume of conference and committee reports and the many studies made of the operations of this international government agency.

Since Schenkman's book is designed to be a political analysis of international cooperation in aviation as this has been brought to fruition through the establishment and operation of ICAO, it should, perhaps, not be critized because of the lack of economic analysis of its operations. The book does represent the distillation of many reports, official documents and publications, and studies previously made concerning ICAO; and since it is well documented and has a complete bibliography of sources from over the world, it should prove a valuable reference work to those interested in the international aspects of aviation, as well as those interested in finding patterns and lessons for international cooperation in other fields.

Harold Koontz

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Furniture Marketing—Product, Price and Promotional Policies of Manufacturers. By Kenneth R. Davis. (Chapel Hill: School of Business Administration, University of North Carolina. 1957. Pp. xvi, 224. $5.00.)

"The objective of this book has been to describe and appraise marketing management among household furniture manufacturers" (p. 195). The topic is, however, examined in its economic setting, and economic theory is freely employed. At the risk of some unfairness to the author I shall review the book in terms of its general interest to economists.

Furniture is an important durable consumer good, equaling appliances and outstripping radio and television sets combined in the postwar period. Except for a Federal Trade Commission proceeding in 1923, there has been no govern-

mental prosecution or special investigation of the industry. Studies of such industries are both more important, as antidotes to bias among economists, and more difficult, because of paucity of data on competitive relationships. Since his sources are general governmental publications, trade journals, interviews with insiders, and some personal experience, Davis must rely on economic theory to fill in gaps in the data. The choice of a perfectly competitive model is, for this reason, the more in need of critical scrutiny.

The multitude of firms, low concentration, absence of high geographical barriers, and ease of entry are consistent with perfect competition, but also with monopolistic competition. Product differentiation is, thus, the key issue.

Even when narrowed to wood and upholstered, household furniture is a broad product classification that encompasses numerous differences in kinds and quality, is subdivided into three major style-groups (traditional, modern, and commercial), and undergoes annual style changes of varying degree within each group. Davis correctly avoids equating differences with differentiation, but there is evidence of genuine differentiation, particularly at higher quality levels; *e.g.*, a *Fortune* article is quoted which states that some firms "make a distinctive line that certain stores insist on having" (p. 156). Also, differentiation appears to be increasing. At lower levels, differentiation is weakened by lack of brand consciousness among consumers (many retailers remove labels), but these ranges also contain some of the best-known firms and largest advertisers. Since quotations from furniture manufacturers suggest pockets of oligopoly determined by geography and quality differentials, different segments of the industry may well fit any industrial classification short of sharply differentiated oligopoly.

Davis does not explicitly recognize any industrial classification between perfect competition and monopoly. Oligopoly is nowhere mentioned and monopolistic and imperfect competition only incidentally in quotations from Chamberlin and Robinson. The criteria for classification are extreme; whether product differentiation and independence in pricing are so great that firms can "disregard the actions of competitors" (pp. 58, 136). The conclusion that the industry is "somewhat like . . . the economists' model of perfect competition" is, therefore, essentially a rejection of monopoly.

After this classification, Davis proceeds to his major task of the analysis of marketing policies, during which he inferentially traverses the range between industrial extremes. For product, price, and promotional policies the rationale is first developed, essentially for strong oligopoly. By contrast furniture manufacturers are shown to have limited freedom in formulating policies, a typical conclusion being: "Few firms hope to make substantial gains through exploitation of price elasticity" (p. 145). Davis never does review all the evidence and state how close an approximation he believes perfect competition to be. Viewed broadly, the industry looks to me like a classic case of monopolistic competition.

The analysis of specific marketing policies and their economic implications is often very astute, but the over-all treatment suffers from the unresolved dilemma that marketing policies are in strict logic inconsistent with perfect competition. In order to discuss marketing, the model must be obscured by

vague qualifications, and strict logical inferences must be ignored. Elsewhere Davis gives the impression of generally seeking to minimize deviations from perfect competition rather than subjecting them to discriminating scrutiny. Sloping demand curves are implied but never explicitly acknowledged and analyzed; implications of strategic interdependence in quotations are overlooked; no attempt is made to distinguish subgroups of different competitive shading. A broader theoretical perspective would have added clarity and consistency, and it might well have modified both the choice of data and the conclusions.

Despite this shortcoming, Davis has done a competent job of bringing the industry into focus and contributing much-needed knowledge of the small-scale industry. The book is short, interesting, generally well written and organized, and suitable for supplementary reading in undergraduate courses in industrial organization.

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Public Control of Business, An International Approach. By PHILIP C. NEWMAN. (New York: Frederick A. Praeger. 1956. Pp. iv, 500. $14.00.)

The provision of case materials for courses in industrial organization and regulation poses problems that can never be completely solved. For one thing, the field is too broad for any but a small part of it to be covered by detailed study of individual situations. Some casebooks are therefore confined fairly rigidly to a single major field, like antitrust or public utilities; others range more widely. Related to the problem of scope is that of intensity; the choice of a casebook involves a nice balancing of breadth and depth, and of both with expense. The standard legal texts—Oppenheim, Schwartz, Handler, Bowie—are encylopedic and expensive. On the other hand, Stelzer's *Selected Antitrust Cases,* which is probably the best available compromise for undergraduate textbook purposes, is confined to the antitrust field, and to sometimes rather skimpily excerpted judicial opinions. Finally, there is the problem of finding the appropriate balance between legal documents and economic materials, both of which are surely essential. Here again most casebooks tend to be of one type or another—collections of industry studies like Adams' *The Structure of American Industry,* or of court decisions, like Stelzer on the one hand or Oppenheim on the other.

In almost all these respects, Newman's book defies classification. The uniqueness of its scope and content constitutes at once a drawback and a virtue. It is obviously too expensive to use as a supplementary undergraduate text, but it is not an adequate substitute for collections like Oppenheim; on the other hand it contains materials that have not been collected elsewhere, and that many teachers will want to make available to their students, both graduate and undergraduate.

The materials fall into six categories: private international cartels; intergovernmental commodity agreements; legislation of various countries; judicial opinions; enforcement techniques; and international proposals to deal with the monopoly problem. This paraphrased table of contents suggests the major

respects in which the compilation is more or less unique: its approach is comparative and international; and it combines a wide range of original source material with the more familiar judicial opinions.

To illustrate these overlapping attributes: The approximately one-third of the book treating of international cartels consists mainly of the texts of such agreements—between du Pont and Imperial Chemical Industries, General Electric and Krupp, Standard of New Jersey and I. G. Farben; of the steel, rail makers, potash, sulphur, copper, and air transport association cartels; of intergovernmental agreements in wheat, tin, tea and rubber; and fascinating first-hand accounts of the organization and operation of the Canadian newsprint industry and of the "as-is" agreement between the major international petroleum companies. Another 135 pages contain the major statutes governing cartels and monopolies of eight leading countries (though unaccountably omitting the 1950 amendment to Section 7 of the Clayton Act). The final section of the book includes the text of the famous Dusseldorf Agreement of 1939, the treaties constituting the European Coal and Steel Community, and the relevant chapters of the lamented Havana Charter—though one would have preferred to see here the Draft Articles of Agreement more recently proposed by the United Nations Ad Hoc Committee. The section on enforcement contains the texts of a few antitrust consent decrees, Federal Trade Commission reports describing some of its work, and the very interesting conclusion and discussion of remedies from the report of the British Monopolies and Restrictive Practices Commission on the British Match Corporation.

As with any other casebook, the price of including much that is novel is a skimping along other lines. The material on judicial interpretation and enforcement is almost exclusively American. There is no adequate sampling of the rich and extremely interesting Reports of the British Monopolies Commission—most of them strikingly illustrating the problems of reconciling the fears of wasteful and destructive competition, so typical of the 1920's and '30's, with the more general commitment to competition of the 1950's—or of the Canadian Commission set up under the Combines Investigation Act. As for the American antitrust decisions, while the selection is for the most part judicious, the excerpts satisfyingly complete, and the brief explanatory introductions (here as elsewhere in the book) helpful, the cases included are necessarily few in number: the latest decision dealing substantively with price-fixing is *Appalachian Coals;* and there are no cases under Robinson-Patman or Sections 3 or 7 of the Clayton Act, or involving open-price associations, basing points, patent agreements, or international cartels. In the field of public utility regulation we are offered only brief extracts from *Munn v. Illinois* and *Hope Natural Gas;* in the field of labor, only *Hutcheson.*

Finally, there is some real question in my mind about the teachability of much of the material incorporated. About 60 per cent of the book consists essentially of the texts of various international agreements, and of antimonopoly legislation. Except for the very welcome and interesting Civil Aeronautics Board decision of 1946 that follows the text of the International Air Transport Association agreement, these excerpts are not accompanied by evaluative case material. It is difficult for me to see how one could put students

through these dry texts without giving them the stimulus and help of additional case material in each instance—for example, extracts from the du Pont-I.C.I. decision (and possibly some of the defenses of the agreements offered by the defendants). Perhaps these questions will be answered by the treatise that Professor Newman has been preparing, to which the present volume was originally intended to serve as appendix.

Most teachers, I judge, will not find it possible to adopt Newman. But I think they will want to have copies within reach of their students; as a source book, pulling together documents that are not readily available elsewhere, it represents a genuine contribution.

ALFRED E. KAHN

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Studies of Overseas Supply. By H. DUNCAN HALL and C. C. WRIGLEY. History of the Second World War, U. K. Civil Series. (London: H.M.S.O. and Longmans, Green. 1956. New York: British Information Services, distributer. Pp. xi, 537. 37*s* 6*d*; $6.98.)

Great Britain's recent revolutionary shift to nuclear weapons, long-range missles, and air power as the primary means of defense in any future world conflict seems to make any study of Britain's global economic strategy in the second world war obsolete as a guide to future action. But the value of this book as a stimulant to policy-making is not destroyed by Lord Macmillan's innovations in the spring of 1957. Those interested in the history of the British economy's trans-Atlantic and Pacific supply sources during 1939-45 will be rewarded. Here is crisp, competent writing on various important problems that were outside the organizational framework or could not be adequately explored in *North American Supply*, Duncan Hall's earlier study of the main factors determining the great flow of war material from the United States and Canada to the United Kingdom and its bases overseas. The scope of the current volume is wider than its predecessor, since its chapters include treatments of the Combined Boards, the British supply organization overseas, Anglo-American scientific collaboration, and the munitions supply from the Eastern hemisphere.

The first four chapters analyze the major problems and developments of munitions supply from the United States and Canada. Their author, Mr. Wrigley, ranges from a survey of British needs and North American supplies of different kinds and quantities of munitions to a candid critique of the problems of cash purchase, lend-lease procurement, allocations, and forward-planning. He stresses, rightly in my opinion, the historical importance of British orders for American machine tools, aircraft, and tankers, and of British capital investment in American munitions plants as together constituting the largest single factor in the tremendous increase of American munitions output before Pearl Harbor. To him the transition from cash-purchases to lend-lease would have been necessary even if British dollar resources had not been exhausted (p. 112). The practical difficulties of negotiating contracts and of winning the consent of the United States government at every step in the supply-process were so enormous as to make some Anglo-American govern-

mental enterprise like lend-lease appear an inevitability. Although I cannot assent to this in all its details, I agree that lend-lease was certainly desirable from the viewpoint of conserving limited British financial resources and of expediting the Anglo-American war effort.

The comments by Wrigley and wartime British officials on certain American governmental practices and positions add spice to this narrative. Arthur B. Purvis, that great pioneer in Anglo-American munitions production and procurement, wrote across a "Note for Henry Morgenthau" on the inferiority of American aircraft to British in 1940: "This is dynamite . . . not given to H.M." (p. 93). Wrigley points out the dislike of British officials for the American officials' rigid, elaborate statistical planning of lend-lease munitions supply. "British administrators regarded the planning of war supply as an art rather than an exact science." They had little faith in the precision of forecasts of requirements or production and considered it folly to allow no deviations from a program based upon these forecasts. To them some of the American requests for detailed data on British requirements seemed examples of "planning run mad" (p. 203).

Most of the second half of this volume deals with the creation, powers, and problems of the Combined Boards (especially those concerned with raw materials, munitions assignments, and production and resources), and of the British War Organization in North America. Mr. Hall explains their varied functions and fortunes with considerable clarity and skill. One of his three packed chapters is devoted to the Combined Raw Materials Board in order to illustrate the processes which created the Combined Board system. He succeeds in his objective, but fails to give full credit to the achievements of the Combined Production and Resources Board. Nor does he portray adequately the role of Canada in the Combined Boards. On the other hand, Hall rewards his readers by many astute observations; *e.g.*, on the difference between the teamwork of British officials and the disunity of competing American agencies (pp. 237-38), and on the rough and ready principles for allocating resources utilized by the C.R.M.B. (pp. 272-73).

The last two chapters by J. D. Scott and C. C. Wrigley respectively, are devoted to Anglo-American scientific collaboration and war supplies from the Eastern Hemisphere. Scott, co-author of a companion volume, *The Administration of War Production*, reveals that the principle of complete scientific interchange was established at least a year before Pearl Harbor. He also describes lucidly and judiciously three major "fruits of collaboration" in the development of radar, the jet engine, and the atomic bomb. The chapter by Wrigley brings out the important contributions of Australia, New Zealand, South Africa, India and the British dependencies in the Eastern Hemisphere at certain critical places and periods during the war. Statistically their munitions contribution was only 1.6 per cent of the total war supply of the British Commonwealth forces. But strategically, in terms of specific place and time utility, the Eastern Hemisphere's supply was of vital importance in British Commonwealth and Empire defense, particularly before 1942.

This volume will satisfy most economic historians, but one regrets the failure of the co-authors to engage in the kind of theoretical and statistical

analysis of war problems to be found in A. J. Brown, *Applied Economics* (1948), D. N. Chester, ed., *Lessons of the British War Economy* (1951), or Lionel Robbins, *The Economic Problem in War and Peace* (1947). Thoughtful readers will discover much that will repay them for going through these studies in British wartime economic history.

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Land Economics; Agricultural Economics; Economic Geography; Housing

The New Revolution in the Cotton Economy. By JAMES H. STREET. (Chapel Hill: University of North Carolina Press. 1957. Pp. xvi, 294. $5.00.)

Why was mechanization so late in cotton growing, how and why did it eventually take hold, and what are likely to be its social results? In pursuing his inquiry into these questions, the author has regarded the subject both broadly and intensively, and makes use of many researches by others into numerous aspects and periods of the cotton economy.

Part I deals with the historical and cultural setting of the problem, tracing it in bold strokes from the earliest days through the second world war. Part II analyzes the technical aspects of the subject. It describes the special nature of the agricultural obstacles to mechanization in cotton picking, the long series of attempts to develop a practical cotton harvester, and the regional differences which affect its performance. Part III discusses the population movements incident to recent national economic growth, the question whether the cotton growers did, or do, face a labor shortage, and the probable effects of mechanization on such matters as farm size and labor. The book includes a valuable bibliography and an index.

The author is particularly successful in weaving together the numerous influences which affected the introduction of more efficient technology in a sector in which the stimuli either to resist or to accept change were far from simple. The cotton economy of the Southeast, established during the early technological revolution initiated by the invention of the cotton gin and of cotton weaving and spinning machinery, became for more than a century, unlike most of the national economy, particularly resistant to innovation and the cultural changes that usually accompany it. Yet by 1955 almost one-fourth of the American crop was mechanically harvested, and in California, the leading state, two-thirds of the crop was picked by machine. This new cotton revolution, the author believes, cannot be halted.

Between the early backwardness and the eventual victory of machinery lie such varied circumstances as the slave economy—slaves being at once a major investment and a reservoir of controlled labor—the attitude that went with this situation, the credit system, especially after the introduction of tenancy and sharecropping, changes in the market for the product, the effects of soils, climate and labor supply in the more recently developed regions suitable for cotton, the difficulty of designing effective harvesting machinery, the lack of stimulus for mechanizing any part of cotton growing unless virtually all the

processes could be mechanized, and the concurrence of new achievements in plant breeding, weed control, plant defoliation, and ginning—all necessary accompaniments for efficient mechanical harvesting.

Mechanization, the author believes, since it is not the result of a labor shortage, will push agricultural workers out of cotton growing. It will not raise the income per head from cotton relative to other incomes, but will increase it absolutely. It has already diminished the demand for child labor and thus has enhanced educational opportunity. All social gains to be expected will depend on a high level of employment in the rest of the economy. Mechanization will favor large farms and render untenable small acreages on marginal lands—unless price supports, not needed by the more efficient, encourage the small growers to continue the struggle for existence in a basically inefficient operation. These conclusions are persuasive.

As a whole, the study seems to rest on thorough research; it is well organized and well reasoned. As a careful examination of a particularly striking case, it should help in the endeavor to round out a theory of economic growth. While resisting the temptation to oversimplify an immensely complex process, the author does not hesitate to express his opinions.

One minor point, largely irrelevant to the main body of the argument, may be questioned. Is it true (p. 7) that the labor scarcity resulting from the invention of the cotton gin in 1793 "was met by the greatly increased importation of African slave labor"? Surely this was not the case for long, since the smuggling of slaves after the foreign slave trade was legally forbidden in 1808 did not provide more than a small fraction of those obtained by domestic breeding.

GEORGE SOULE

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Localisations et rythmes de l'activité agricole. By GILBERT RULLIÈRE. (Paris: A. Colin. 1956. Pp. x, 348. 1.300 fr.)

This work emphasizes the relationship of man to the land conceived as a complex of interrelated forces which reveal tendencies both to stability and to change. The analysis is broadly segregated into spatial and temporal aspects. The spatial analysis is based on the work of Von Thünen as elaborated by Brinkmann and Lösch. This schema is, however, too simple as a basic tool for handling the factors determining the location and the utilization of factors of production in the agricultural structure. It is based largely on the single factor of transport costs and certain simplifying assumptions which do not permit an adequate establishment of the functional relationship between distance and other factors. Accordingly the function "revenue—net-distance" is developed on the basis of Lösch's functional relationships as an improvement in the analytical model. Even so it is not possible to deduce more than a simple schema because too many factors are operating.

Introduction of temporal factors brings new complications with respect to both the demand and the supply of agricultural products, in the form of development, instability and the forces working in national systems of agriculture. Adjustment to the changing scene requires a degree of flexibility amongst

the factors of production working within the agricultural structure if undue reductions in revenue accruing to agriculture, government interference and overcrowding and malexploitation of the inherent resources in the land are to be avoided.

Throughout the work M. Rullière repeatedly warns that the complexity of agricultural problems is often unsuspected and that the influence of a large number of underlying factors is delimited with difficulty. At the same time he demonstrates that the basic tools of economic analysis are capable of dealing with the subject-matter, given adequate data, the proper approach and a not too great insistence upon rigorous or formal conclusions. The book goes a long way towards a cataloging of the relevant factors which must be taken into consideration in such a study.

The work is developed largely at the theoretical level with frequent reference to experience. Part III dealing with the national scene is largely devoted to illustrative material from the economic history of the United Kingdom, the United States, Bulgaria, Brazil and Denmark. It is unfortunate that more of this type of material was not incorporated into the work. There is a great need for a general study of the international distribution of resources in agriculture and the necessary adjustments which have taken place in relation to world markets since the first world war, not only as a result of economic factors, such as the trade cycle and technological change, but also as a result of the two world wars which have profoundly affected agriculture. It is hoped that in the future Rullière will be able to apply his analysis to this important field.

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American Housing and Its Use. By LOUIS WINNICK. A Census-Social Science Research Council Monograph. (New York: John Wiley. London: Chapman & Hall. 1957. Pp. xiv, 143. $5.50.)

This volume is one in the Census Monograph Series. In the foreword, the director of the Census and the president of the Social Science Research Council state that the purpose of these volumes is to analyze and discuss the social and economic relationships and trends discernible among the voluminous census data. They are to include broad explorations of new questions suggested by new information and are also to narrow the elements of doubt and controversy on old questions. Winnick has succeeded in meeting these objectives admirably. He has contributed several important new concepts to the field of housing analysis. At the same time, he has tested and strengthened prior theories, has shown how the theories have worked in actuality, and in some cases, has corrected commonly held errors which arose from failure to examine the proper data.

This volume demonstrates that housing analysis has been weakened by a failure to consider adequately the amount of space in terms of rooms (or perhaps size and quality of rooms) that families desire and use. It is not sufficient, as has too often been done, to analyze space merely in terms of occupied or vacant dwelling units. For as market demand for rooms alters, a given amount of space may be split up or recombined into widely varying numbers of dwelling

units. The disparity between these two types of space-demand helps to explain the low level of residential construction in the 1930's, the unusually high level of construction demand in the decade after the second world war, and perhaps the recent weakness in this market.

The largest part of this volume consists of an analysis of the variables influencing this use of space, the changes over time in these variables, and the resulting utilization of the housing stock. Winnick has used his data with ingenuity and has presented the results with clarity and admirable readability.

The major variables affecting demand for rooms appear to be: family size; income; costs; race; and geographical location. Family size is the most important. Larger families demand more rooms, but their demand does not increase as rapidly as the family. As a result the larger a family, the less space available per member. There appears to have been a 15 to 20 per cent fall in the ratio of persons per room since 1900. This plus other data convince the author that housing space standards have improved at a far slower rate than most other items in our national standard of consumption. Discovering the reasons for this lag is important for future forecasts and policy determination. Even so, the United States standards are far above those of other countries, and there is far less deviation around the average standard than is true for most other goods.

In addition to its very positive analytical contributions, this work may play a still more significant role if it leads the Census to re-examine the present inadequate methods of making data available for research purposes. The author is forced to apoligize on the average of every five or six pages because the census data cannot really be used to test adequately the theories presented. In his words, "an attack on the problem via census data can be made only with the aid of bold assumptions and catch-as-catch-can technique" (p. 42). As he points out, a family's utilization of space is the result of many independent and interdependent causes. The Census, however, only publishes data concerning highly aggregated groups of families. Rarely can the effect of more than one or two economic variables be analyzed from ceusus data. Only through unusual skill, insight, and imagination is Winnick able to obtain his results. He accomplishes this by drawing upon a wide variety of diverse (frequently noncensus) and basically insufficient data.

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Mecanización de la Agricultura Méxicana. By Luis Yañez-Perez. (Mexico, D. F.: Instituto Mexicano de Investigaciones Económicas. 1957. Pp. xvii, 419. P30.00; $3.00.)

This is the first study issued by the Instituto Mexicano de Investigaciones Económicas, an organization set up by, but apparently independent of, the Banco de Mexico, the Nacional Financiera, and the Banco Nacional de Comercio Exterior. Its purpose is to determine to what degree Mexican agriculture should be mechanized in relation to the growing rural population of the country. The point of view is that of economists concerned with developing the basis of national policy. The result is a very broad study of certain

aspects of agriculture in Mexico (while by-passing such sticky questions as the future of the *ejido*).

The opening chapters survey the characteristics of the Mexican population and its rate of increase (using previously published data), the distribution of land by size of holding and type of tenure (*ejidal* and private), and man-hour labor inputs per hectare. Figures are given on a national basis, by regions, and by states for the eighteen principal agricultural products produced in the country accounting for about 95 per cent of all cultivated land.

Output per hectare and per man-hour is given for each of the crops studied. Productivity is defined in physical terms, but fortunately, also given in value terms since comparisons are drawn between different crops. This data is of considerable interest both for those concerned with the specific case of Mexico and as a picture of agricultural productivity variations in similar underdeveloped areas. Value of output per man-hour, for example, was less than .8 pesos in the important bean crop and 5.2 pesos in export crops such as cotton and oranges.

A comparison of the difference between average yields per hectare and productivity per man-hour on one hand, and yields and productivity achieved on the most mechanized holdings gives a figure for the increase in output possible from mechanization. Add to this estimates of the total area "mechanizable," assumptions as to the area an average tractor can work and its labor requirements, and finally projections as to the rate of population growth in agriculture, and one can (and the study does) derive answers to a series of important questions, *e.g.*, the potential output gains from mechanization, total labor requirements and the possibility of absorbing the growing labor force, the number of machines required and the cost of mechanization.

Nothing is more startling to the cautious academic economist in the United States than the willingness of writers in the underdeveloped areas to launch proposals for large-scale economic and social changes on the basis of admittedly uncertain data and broad assumptions as to the behavior of crucial variables. The pressures of poverty are, however, compelling and make necessary decisions today rather than tomorrow, when presumably the statistics will be better and the economics of progress understood.

On the basis of their data, the authors advance with many qualifications a proposal for mechanizing Mexican agriculture. They propose a 24-year program of equipping it with tractors, and the complementary equipment such as drills, harrows, and plows. They also propose an increase in the area under cultivation by bringing into use cultivable areas not presently in use (there is considerable vagueness as to what, in economic terms, "cultivable" means). They propose to decrease the cultivated land left out of production each year, *e.g.*, fallow, from 50 per cent of total cultivated land today to 19 per cent of the increased total cultivated land. The total area cultivated each year will thus be increased from 19 million hectares to about 27 million hectares. At the end of the 24 years most (about 80 per cent) of the land would be worked with tractors and complementary equipment. The increase in the agricultural population would be absorbed, the average size of holding would be increased (but the balance between *ejido* and private holding is left undisturbed) and

there would be a substantial migration from the overcrowded central plateau to the north and southeast sections.

One might approve the program on the grounds that, (1) though the underlying data are highly unsatisfactory and the projections subject to enormous range of error, the need as Mosk has pointed out, is, to develop agriculture if industrialization is to proceed at recent rates, and (2) that the absolute magnitude of goals can be adjusted over the course of 24 years as more experience is gained. The suggested program could be taken as a maximum effort. The cost calculations are another thing, however. The total cost of the program is obtained by multiplying average cost per unit of equipment today by the total 24-year increase in their numbers. The cost of the program for its initial year thus calculated would have been only 0.64 per cent of national product at factor cost in 1956 and a decreasing fraction thereafter. No estimates are made of the investment costs of producing tractors, or of the foreign-exchange problems if the tractors are imported, or the costs of relocation, or training of labor. Some of these problems are recognized by the authors, but one gets the feeling that they do not consider them crucial. The least one can say is that some further studies are indicated before it is legitimate to start calculating the cost as a per cent of national product. Then it may be time to discuss the project in terms of alternative uses of investment allocation.

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Labor Economics

The A.F. of L. in the Time of Gompers. By Philip Taft. (New York: Harper & Brothers. 1957. Pp. xx, 508. $6.75.)

The appearance of the first volume of Professor Taft's new history of the American Federation of Labor is a notable event. In making this study, the author has had the cooperation of the Executive Council and senior officers of the A.F. of L. and he has had access to a vast collection of published and unpublished material. The result is a massive, richly documented work of scholarship which will long remain a standard source of reference.

Inevitably, comparison will be made with Lewis L. Lorwin's earlier history of the A.F. of L. and with Samuel Gompers' *Seventy Years of Life and Labor.* Taft's account of the A.F. of L. under Gompers is more detailed and more methodical than that given in these earlier works, but it does not evoke the interest of the reader in the same memorable fashion. In failing to bring his subject to life, the author leaves the reader without a rounded picture of Gompers as a man, and without any clear conception of the A.F. of L. as an institution. Just why was the Federation successful? What made it "tick"? To what extent did the A.F. of L. really influence the pattern of social evolution in the United States? Was it merely, or mainly, the dynamic energy, self-confidence and shrewd bluff of its determined, rather pompous little president that made the A.F. of L. a great national institution? Taft provides no direct answer to questions such as these. This may be due to his method of exposition, which is to examine each major facet of the Federation's activities

separately, or it may be that the author is leaving a full critical assessment of the Federation to a later volume.

The manner of the A.F. of L.'s coming into existence has been told in many books, most notably by Samuel Gompers himself, in his fascinating autobiography. Taft does not devote much space to the forerunners, but he does indicate that the conception upon which the Federation was founded marks if off from any previously established national labor organization. The principal reason for the creation of the A.F. of L. was to support the self-defense of the separate unions, in the first place against the dangerously irresponsible activities of the Knights of Labor and, in the second place, against the employers and allies in federal and state governments. Sweeping ideological objectives were eschewed in favor of a pragmatic program of rapidly achievable goals. The fundamental tenet of the A.F. of L.'s organizational structure was the autonomy of the constituent unions. In both these features, the A.F. of L. differed sharply from its contemporary rival, the Knights of Labor, and from earlier attempts to create a powerful, nation-wide labor organization.

The British Trades Union Congress, founded eighteen years before the A.F. of L. finally emerged in 1886 as a fully fledged organization, was, as Taft shows, cited as the example which American unions ought to follow. Though Taft does not compare the two organizations, it is of interest to make this comparison, since it deepens the perspective from which the development of the A.F. of L. might be viewed. Like the A.F. of L., the Trades Union Congress also differed quite significantly from its several predecessors. It was, however, in contradistinction to the A.F. of L., established to achieve objectives that were primarily political. The immediate cause of the holding of the first T.U.C. meeting was a rather trivial insult to the trade unions from the middle-class Social Science Association. But the unions were also faced with the need to win from a hostile Parliament a statute which would free them from dangerous decisions in the courts by Her Majesty's judges. Previous attempts to set up a nation-wide organization had foundered because they either sought utopian goals, or attempted to supersede the individual unions by the creation of one big organization. The T.U.C. left domestic trade union problems severely alone and concentrated on lobbying Parliament for legislation that would favor labor interests.

Though the objectives of the British T.U.C. were mainly political, its energies were, until 1890, chiefly confined to securing changes in the law that would remove discrimination against wage earners. Attempts to persuade the T.U.C. to adopt, for example, a policy in favor of the legal regulation of hours of work were bitterly resisted. The decisive change in the attitude of the unions toward state intervention to protect workpeople came with the organization of the unskilled workers in the 1890's. Since the A.F. of L. was still primarily an organization of craft unions at the time of his death, it is perhaps not surprising that Samuel Gompers remained throughout his life a strong opponent of social security provided by legal regulation.

Perhaps the most important function of the A.F. of L. was to assist the member unions to build up their organizations and to help them resolve their jurisdictional conflicts. The British T.U.C. fought shy of such responsibilities

for many years; when it ultimately established machinery to settle inter-union conflicts it never sought to impose, as did the A. F. of L., a policy of exclusive jurisdiction. Nor did the T.U.C., until it adopted a new constitution in 1921, make any serious attempt to define its powers in relation to its affiliated unions.

Taft might have pointed out that British trade unionists reversed the compliment which the Americans had paid to the T.U.C., when a section of them, dissatisfied with the role which the T.U.C. had for long played, cited the A.F. of L. as the example which henceforth ought to be followed. The critics of the T.U.C. and of its Parliamentary Committee at this time sought two objectives: (1) to bring into existence a political party based on the trade unions; (2) to create a Federation of Trade Unions that would assist the unions to organize to fight the employers, especially by the aid of a central strike fund, and to direct the strategy and tactics of the whole trade union movement. Both objectives were achieved at the turn of the century, but the General Federation of Trade Unions, which its founders thought they were modeling on the A.F. of L., failed to supersede the T.U.C. It also failed to persuade the unions to abrogate their autonomy and, in practice, it only survived by the acceptance of the principle upon which the A.F. of L. had been founded.

By a curious stroke of fortune, the General Federation of Trade Unions became the representative British body in the international trade union field, from its foundation until the end of the first world war, when it was ousted by the T.U.C. Though the A.F. of L. exchanged fraternal delegates only with the T.U.C., it had contact with the G.F.T.U. through its international activities. It is clear, however, that Gompers and his Executive Council were never properly aware of the relative significance of the two organizations in relation to the British labor movement; this was to be partly the cause of the A.F. of L. becoming intimately involved in the bitter quarrel between the T.U.C. and the G.F.T.U.

During the first world war, the A.F. of L., until 1917, maintained relations with both the British and the German trade union movements, and it proposed that a conference of labor organizations should be held at the same time and in the same city as the peace conference at the end of the war. This proposal was rejected in 1916 by both the T.U.C. and the G.F.T.U., who were, at this stage, not prepared to consider meeting the German trade union leaders. This was the last time, however, that the T.U.C. and the G.F.T.U. were to be in harmony on international affairs. The T.U.C. and the G.F.T.U. were already in conflict over domestic issues, and when the Parliamentary Committee decided to support the Labour Party's declaration of war aims, the rift widened. The G.F.T.U. sought the support of the A.F. of L., which, under Gompers' direction had, with the entry of the United States into the war, adopted an uncompromising anti-German attitude. Britain had already been in the war two and a half years, and the appalling casualties had left the great majority of trade unionists in no mood to listen to jingoes. It seemed offensive to many of the T.U.C. leaders that the A.F. of L. should dare to question their patriotism and will to win the war because they had supported President Wilson's fourteen points. Nothing could have been more ironic than the spectacle of British labor adopting Wilson as their hero, while at

the same time the American labor movement was giving support to the anti-Wilson policies of Lloyd George.

The British Prime Minister and the minority of die-hard labor men who supported his "fight to a finish" policy, had skilfully used the A.F. of L. to bolster their views, and they flattered Gompers into making a personal trip to Britain in 1918 in the hope that he would discredit Henderson. Though Gompers, as his autobiography reveals, completely failed to understand the developments that were taking place in the attitudes of the British trade unions, he was brought to realize by events before he left Britain that the G.F.T.U. represented only a tiny minority of trade union opinion. However, although—in his autobiography—the leader of the A.F. of L. gives the impression that his tour was a triumph of powerful labor statesmanship, it was, from the point-of-view of changing the policy of the T.U.C., a complete failure.

It is a pity that Taft has not explored the international activities of the A.F. of L. much more deeply, since the attitudes and policies which emerged in this period have persisted to the present day. To the British trade unionist, the approach of the Americans to international problems often appears crude and unsubtle, and the way in which they present their views often dogmatic, boastful and bullying. On the other side, the A.F. of L. have often felt with Gompers that the British were always ready to secure an advantage by the unscrupulous sacrifice of principle for expediency. Perhaps the remarkable thing is that the two organizations have maintained close and friendly relations without a real break for over sixty years, in spite of fundamental differences in tradition. Credit for laying the foundation of this cooperation must go to Gompers.

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Die 40-Stunden-Woche. By HEINZ HALLER, GERHARD KROEBEL, and HANS SEISCHAB. Lebendige Wirtschaft. Vol. XVI. (Darmstadt: C. W. Leske. 1955. Pp. 275. DM 9, 80.)

A generation ago United States economists debated the merits of the 40-hour week. Today Europeans are discussing the same problem, while we are tackling the economic consequences of the 36- and even the 32-hour week.

The crux of the problem in the United States is likely to be the effect on prices and profits of the extra costs of time-and-a-half after 36 hours. Europeans, however, hope to offset higher wage costs per hour of work by increased productivity. Continental businessmen take a *quid pro quo* attitude and ask for some kind of return from the workers for their concessions or, less frequently, exert greater efforts themselves.

There is some real possibility of raising productivity in man-paced work when the work week is reduced from 48 to 40 hours. Below that point, however, it is unrealistic to expect general improvement. It might even be argued that output per man-hour is likely to fall, since the number of two-job workers, already sizeable, would increase, and some leisure-time activities are more fatiguing than work.

This, then, appears to be essentially the contrast between the European and the American attitude toward shorter hours of work: European businessmen still think they can offset the cost rise by getting the workers to work harder. American businessmen know that any offsetting increase in productivity is more likely to come through better methods and better machines. From the viewpoint of the workers themselves, it might be added that increased leisure is probably more important to the European than to the American.

This book contains the proceedings of two conferences held by the German Economic Society in a series of seminars in 1955, and is one of a series of volumes on "The Living Economy." The text is made up of the edited transcript of the papers and discussions of seminar participants, including representatives from industry, labor, government, the universities, and special institutes for research on this problem.

The point of view of the "Living Economy" series is stated as antitheoretical—"the cares and requirements of life are exposed." It is antidogmatic—"all points of view are discussed." It is pragmatic, recognizing the necessity for "adaptation to circumstances."

This volume is all these things, but like so many German publications it is prolix, detailed, repetitious, and couched in extravagant language. A number of the contributions remind one of the old American gag about doctorate theses: "Big words, small print, no sale."

Of the four principal papers, the one least deserving of this criticism and the most refreshing is that of Gottlieb Duttweiler, president of the very successful Migros Stores. He says frankly that the basic problem in Switzerland is not whether the work week will be reduced from 48 hours to 44, but only the timing of the reduction. If employers fight the reduction, he believes, they will probably lose, since technical progress is bound to lead to shorter hours.

H. Haller of Kiel University gives his blessing to the reduction with reservations. It would be a good thing, he says, to have a shorter work week provided "productivity" (not defined) rose proportionately. And he would have the change proceed for "small groups," with an agreement that constant total wage payments would be maintained only to the extent that productivity per hour increased. This, he holds, would provide a brake. If the work week is reduced without a corresponding increase in productivity, he says, the inevitable result will be higher prices, which might cause a serious economic situation, especially in view of Germany's defense commitments. At one point, however, he appears to concede that the difference might come out of profits.

Dealing with the applied-economic aspects of the 40-hour week H. Seischab of Hamburg University advocates continuation of the 48-hour week "as a historic necessity," at least until its beneficial effects can be passed on to everyone. Further, he states, the adverse effects would be the greater, the greater the rise in the rate of wages and reduction of hours, the more labor-intensive the products, the greater the required expansion of capacity and overtime.

While the two theoreticians seem to be overly pessimistic in the light of experience and narrow in their theoretical postulates, the labor-union expert,

Gerhard Kroebel, seems overoptimistic. He presents a long list of alleged advantages of the shorter work week and concludes with an appeal for more courage in experimenting. Among the numerous discussants the only extended experience presented is from the coal mining industry, which offers some contradictory data and opinions. Unfortunately nowhere is an attempt made to summarize and distill all the different points of view, and the result is a great miscellany of facts that are no more an operational framework of analysis than a collection of different-sized bricks is a house.

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Womanpower: A Statement by the National Manpower Council with Chapters by the Council Staff. (New York: Columbia University Press. 1957. Pp. xxxiii, 371. $5.00.)

This report is likely to have the widest audience of the Council's three studies of selected problem areas in manpower, partly because a wider variety of policy issues is necessarily involved and partly because there are differences of opinion on the interpretation of available information and on appropriate policies. The subject-matter therefore lends itself extremely well to the Council's technique of clarifying current issues in a problem through conferences and consultation, and of supplementing policy recommendations by analysis of historical trends and interpretation of the findings of recent studies. Viewed in historical perspective, the argument about women's work outside the home is, like work in the home, "never done." Perhaps one should add that, despite the argument, women appear to have accomplished what is called a "revolution" in gainful employment.

The outstanding features of the revolution are sketched in terms of increased labor-force participation, particularly by married and older women, and the interrelationships of these developments with changing patterns in such varied influences as the levels of family income, standards of living including education, or the age of marriage and child-rearing. While the ratio of workers to nonworkers in the population has not changed much since 1890 there has been a marked change in the composition of the two groups. Women have replaced men who have retired from or delayed entrance to the labor market, and married and older women have replaced and added to the supply of younger women. Since 1947, a period of high levels of employment and of intermittent labor shortages in some occupations, women have accounted for most of the growth of the nation's working population. There has also been an increase in the number of part-time jobs, particularly in the service industries where a variety of schedules that appeal to married women appear to be feasible.

About a third of all employed women hold full-time jobs and work throughout the year, another third work full-time but for only part of the year and the remainder hold part-time jobs for varying periods. Intermittency of work experience therefore characterizes a substantial majority of women workers over their life-span. Nevertheless, it is estimated that "today's school girls may spend 25 years or more in work outside the home."

The report discusses the effect of such influences on women's attitudes to work careers, their education and vocational guidance, and the hiring practices of employers. Alleged differences between men and women in labor turnover and absenteeism, in rates of pay and earnings, and in qualifications for promotion are considered. Despite the opening of a wide variety of occupations to women in recent decades, the report notes their concentration in traditional fields of employment and the persistence of conventional attitudes in the "sex-labeling" of many jobs.

There are chapters devoted to a consideration of women as workers in business and industry and in the armed forces and professional pursuits; and labor shortages of clerical workers, nurses, teachers, and social workers are also discussed at some length; in fact, almost all aspects of women's work outside the home are considered in an appropriate setting. The reader who desires to be brought up to date on a variety of issues, trends, and new developments will find this volume a useful compendium.

The Council indicates that many issues of both public and private policy are unresolved and that more research is needed on the problems posed by recent developments. It also recommends improvements in the training and counseling of the labor supply, changes in personnel practices looking toward more effective utilization of women, and greater flexibility in work schedules. Both the recommendations and the analysis are broad in scope, and the report should find a place on the desks of all personnel managers, guidance counselors, and labor economists. The technicians in labor-force analysis, who usually prefer more supporting data or are inclined to discount conclusions they cannot readily check, should read this report for the stimulus of the ideas it presents.

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Population; Welfare Programs; Standards of Living

Population Theory and Policy. Edited by JOSEPH J. SPENGLER and OTIS DUDLEY DUNCAN. (Glencoe, Ill.: The Free Press. Pp. x, 522. $7.50.)

To those of us who have attempted to give courses in population to students of economics, this book of readings, like its companion volume (*Demographic Analysis: Selected Readings*), is almost a godsend. The volume under review contains some 38 pieces, mostly by American economists and sociologists. The editors have provided short and useful introductions to various sections of the book, and a good classified bibliography. Although the level of the articles reprinted differ, most of them are suitable for seniors or first-year graduate students.

How should one review a book of readings? Are the selections optimal given the resources of the editors? Not knowing the resources constraints involved I cannot really judge. While many of the selections are excellent there are a few that are, at best, marginal.

The first two papers are reviews of doctrine. Of these, the one by A. B. Wolfe (1928), covering the decade beginning with 1918, though excellent in its

way, is somewhat dated. The other is an extract from a United Nations volume.[1] The anonymous UN authors apparently felt that they had to be all-inclusive, and yet reasonably terse. As a result some 29 pages of text are followed by some 20 tightly packed pages of citations and notes.

Three of the pieces are of a broad methodological nature. At least two, and perhaps all three, were presidential addresses at the Population Association of America meetings. While these somewhat exhortatory pieces are of interest as after-dinner speeches to fellow professionals, they are probably of marginal value to the beginning student.

Five of the papers, and they are very good ones for the purposes at hand, are by J. J. Spengler. This is almost inevitable since Spengler has written and contributed so much in this area. He probably bent over backwards not to include more of his own writings.

The pieces by economists fall into three groups: The first consists of articles of a broad nature that consider the general relations between economic and demographic variables. Kenneth Boulding's interesting piece, "Toward a General Theory of Growth," falls under this rubric. Also Alan Peacock's excellent exposition, in modern terminology, of the Malthusian model is in this category. The second group has to do with the relation between population and the business cycle, and the third deals with the connection between population growth and economic development.

There are two long sections, containing about seven contributions each, on "The Socio-Cultural Context of Population Dynamics," and on "Population Policy."

On the whole the pieces are balanced, often judicious, and exceedingly useful for the student. However, in one sense this collection is not especially well balanced. One misses in it the heat of the "population debate," and the spirit of controversy that so often surrounds discussion and writing in this area. Also, I believe that the value of this volume would have been increased had the editors found it possible to publish at least a few translations of the numerous contributions that have appeared in languages other than English.

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[1] *The Determinants and Consequences of Population Trends* (New York, 1953).

Economic and Social Security: Public and Private Measures Against Economic Insecurity. By JOHN G. TURNBULL, C. ARTHUR WILLIAMS, JR. AND EARL F. CHEIT. (New York: Ronald Press. 1957. Pp. vii, 539. $6.00.)

For the past few years the need for an adequate social security text has been growing. Eveline M. Burns' *The American Social Security System,* though still valuable as an exposition of basic social insurance principles, is out-of-date with respect to provisions of the system. Gagliardo's *American Social Insurance* lacked the qualities of an authoritative work. As a result, social security course instructors have had to lean heavily on official informational brochures and the general literature of the field. These are abundantly available and very useful but make for difficulties at the introductory level.

The instructional problem will be alleviated by the present book which has a number of excellent characteristics. It covers both public and private measures for meeting the problems of death, old age, unemployment, occupational and nonoccupational disability and sickness, as well as "substandard conditions"—all this compressed into only 527 pages. Each program is preceded by able presentations of the nature and extent of the particular security problem, which are, in a way, the best parts of the book. In each area, the authors prove themselves well informed on the important studies and leading developments. The footnotes offer excellent jumping-off-points for the enterprising student. The writing, despite the technical nature of the material, is clear and interesting.

Two serious criticisms, however, may be offered. First, the detailing of the various programs is generally too thin, and second, the book is rather too opinionated for an avowedly introductory text.

In regard to the first, the authors deliberately play down factual detail. They hold that "detailed presentation" does not serve "the purpose of a text whose aim is analysis and evaluation" (p. 193). They seem to have been concerned that their work would turn out to be "a statistical compendium of facts and figures on social security" (p. 4), and one that would become obsolete all too rapidly.

Surely a more solid factual base, short of such an extreme, should have been feasible. The most substantial problem confronting the social security instructor is that of imparting understanding of how the complicated social security systems operate. This is not especially aided by a text which suggests (p. 194) that he spend a week on his own state unemployment insurance law, and, for other state laws, refers him to the basic Bureau of Employment Security document on the subject. Social security instructors, no less than the authors, have discovered these expedients, and there is a question as to what contribution the text is making at this point.

One also wonders why no fewer than three chapters, amounting to a sixth of the volume, were expended on "substandard conditions," including labor supply and demand curves, child labor laws, Fair Labor Standards Act, hours regulation, etc. These topics are amply treated in the texts of labor problems courses, which are generally prerequisite to a social security elective. The authors' contention that "economic insecurity is inherent in substandard working conditions" (p. 7) does not justify such overlapping, especially at the expense of the traditional social security areas.

On the second criticism, the authors cap dearth of fact with excess of evaluation of a fairly special brand. Government, according to the authors, "serves its most useful function in providing a 'basic layer' of protection upon which private supplements can be built." They "prefer to see, within the governmental framework, a maximizing of the area in which private enterprise can operate" (p. 26).

This viewpoint is provocative and challenging, but overstressed in a textbook. The authors' approval of the governmental sector of social security sometimes appears almost conditioned on no further liberalization taking place. Thus, they question even the need for increasing the maximum weekly

unemployment benefit amount so that average benefit rates may keep up with average wage rates on a 50 per cent basis. They are, in this instance, not impressed with either the views of most social insurance students, or the widespread bipartisan acknowledgment of the need for the proposal. Their analysis of the problem as "fundamentally one in economic choice: scarce resources against unlimited wants" (p. 209) is too far-fetched a criterion to justify abandonment of a basic principle of unemployment insurance.

The authors are "bluntly uncertain about the desirability of social medical expense insurance," and favor "a wait-and-see attitude in this area" (p. 302). Yet the reader is not reassured by their own description of the confusing diversity of voluntary, private accidental injury and sickness plans. The authors themselves concede that this field is "so complicated that relatively few insureds understand it well enough to make intelligent decisions" (p. 362).

There is no question that the book has been carefully planned and skillfully put together. Yet this reviewer cannot help but wish that the authors had been a little less fearful of substantive fact and a little more fearful of embarking in an introductory text on evaluation of the whole congeries of private and public security programs. More concern for the pedagogical needs of the social security course, and less wrestling with the problem of the future of social security would have been in order.

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Consumer Economic Problems. By E. BRYANT PHILLIPS. (New York: Henry Holt and Co. 1957. Pp. viii, 480. $4.75.)

This well-organized and generally attractive book is an important addition to the existing textbooks in the field of consumer economics. It is scholarly in approach, and shows evidence of careful research; but it is not the pedantic type of text. In a field as broad as the economics of consumption where concepts are sometimes vague and values difficult to measure, Professor Phillips has done an excellent job of presenting specific facts, and organizing seemingly unrelated data into easily understood areas of discussion. The subject is presented from the consumer viewpoint and a reader-centered attitude is maintained throughout the work. Supporting material in the form of tables and charts is kept to a minimum and the statistics and factual information are up-to-date, pertinent, and well selected from government reports and surveys of leading organizations in economic and marketing research.

Part I deals with consumer demand and is highly technical, introducing a multitude of economic terms in the first chapter. The second chapter continues the discussion of economic theory in relation to the consumer. The interrelation between production and consumption is clearly explained but the treatment of the propensity to consume and income flow lacks clarity and the money-flow diagram seems unnecessarily complex. The chapter concludes with a very practical and thought-provoking discussion of consumer budgeting and the need for education along this line.

Part II, consisting of eight chapters, covers purchasing problems which the consumer has to meet. Chapter 3 is a comprehensive presentation of the

economic theory of price determination. Chapter 4, dealing with nonprice competition, is less technical, although a large number of distributive systems are described in the eighteen pages. Chapters 5 through 10 discuss advertising, sales promotion, personal services, consumer credit, consumer aids, and wartime consumption. The text becomes progressively more interesting and informative. In fact the reader finds himself intrigued with descriptions of advertising devices and selling schemes. This material is handled with frank impartiality, analyzing without subjective comment the blessings and evils of modern organized selling.

Part III, discussing consumer interest in the political economy, is a new and effective approach to the consumer's stake in political-economic issues of our times. Chapters 11 through 16 are devoted to government services, housing programs, the farm problem, medical assistance, social security, and resource conservation. The consumer interest is skillfully linked to each of these areas by first describing the individual consumer activity and then showing the effects upon it of a particular governmental or social program. Chapter 17 leaves the domestic scene and describes the relations of the more important present-day aspects of international trade and finance to consumer affairs. The final chapter is an excellent comparative description of consumer welfare in communistic economies and in several foreign noncommunistic economies. In all of Part III Phillips has continued his unbiased attitude in presenting both sides of the issues.

With the exception of the technical discussion in the first three chapters, every consumer will find much of interest in the book, and it can be highly recommended for general reading as well as for the classroom.

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Erratum

The review of *The Theory and Working of Union Finance in India,* by R. N. Bhargava, on page 740 of the September 1957 number of this *Review,* carried the imprint of George Allen and Unwin, London, but omitted the American publisher The Macmillan Company, New York.

TITLES OF NEW BOOKS

General Economics; Methodology

BÖHLER, E. *Nationalökonomie—Grundlagen und Grundlehren.* (Zurich: Polygraph. Verlag. 1957. Pp. 296. 19.70 fr.)

CROWTHER, G. *The wealth and poverty of nations.* Three lectures delivered at Claremont College, 1956. (Claremont: Claremont College. 1957. Pp. 48. $2.75.)

DODD, J. H. AND HASEK, C. W. *Economics—principles and applications.* 3rd ed. (Cincinnati: South-Western Pub. 1957. Pp. x, 817. $6.)

TAKATA, Y. *An introduction to sociological economics.* Econ. ser. no. 13. (Tokyo: Div. Econ. and Commerce, Sci. Council of Japan. 1956. Pp. 83. *Gratis.*)

TUCKER, G. M. *Common-sense economics.* (Harrisburg: Stackpole. 1957. Pp. xiii, 289. $4.95.)

International bibliography of economics. Doc. in the Soc. Sci., vol. IV. (Paris: UNESCO. 1957. Pp. 588. $10.)

This volume is mainly devoted to works published in 1955, although some 1954 items are also included.

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

BARTOLI, H. *Science économique et travail.* Essais et travaux, l'Univ. de Grenoble, no. 9. (Paris: Lib. Dalloz. 1957. Pp. 308.)

BOUSTEDT, O. AND RANZ, H. *Regionale Struktur- und Wirtschaftsforschung—Aufgaben und Methoden.* (Bremen-Horn: Walter Dorn, for Akad. f. Raumforschung und Landesplanung, Hannover. 1957. Pp. 218. DM 16, —.)

CHESSA, F. *L'attività umana e le teorie economiche.* (Human activity and economic theories.) Collana di saggi de econ. e storia econ., no. 1. (Milan: Giuffrè, for Univ. of Genoa. 1956. Pp. viii, 359. L. 2000.)

COMMONS, J. R. *Legal foundations of capitalism.* (Madison: Univ. of Wisconsin Press. 1957. Pp. x, 394. $1.95; cloth, $6.)

Originally published by Macmillan in 1924.

DUNLOP, J. T., ED. *The theory of wage determination.* Proceedings of a conference held by the International Economic Association. (New York: St. Martin's Press. London: Macmillan. 1957. Pp. xv, 437. $7.50.)

FAXÉN, K.-O. *Monetary and fiscal policy under uncertainty.* Univ. of Stockholm econ. stud. n.s. no. 1. (Stockholm: Almqvist & Wiksell. 1957. Pp. 212. SKr. 20.)

HAERRY, H. *Die Intensität des Wettbewerbs—Ein theoretischer Beitrag.* (Winterthur: P. G. Keller. 1954. Pp. vii, 113.)

HENN, R. *Uber dynamische Wirtschaftsmodelle.* Veroffentlichungen der Wirtschaftshochschule Mannheim. Ser. 1, no. 4. (Stuttgart: Kohlhammer. 1957. Pp. 120.)

KARATAEV, N. K. *Economicheskie nauki v moskovskom universitete 1755-1955.* (Economic sciences in Moscow University 1755-1955.) (Moscow: Moscow Univ. 1956. Pp. 344.)

KELLER, P. *Dogmengeschichte des Wohlstandspolitischen Interventionismus.* (Winterthur: P. G. Keller. 1956. Pp. x, 367.)

KHAN, M. S. *Schumpeter's theory of capitalist development.* (Aligarh, India: Muslim Univ. 1957. Pp. ix, 175.)

KONDRASHEV, D. D. *Tsenoobrazovanie v promyshlennosti SSSR.* (Price formation in Soviet industry.) (Moscow: Gosfinizdat. 1956. Pp. 175.)

MAKOWER, H. *Activity analysis and the theory of economic equilibrium.* (New York: St. Martin's Press. London: Macmillan. 1957. Pp. xiv, 192. $5.75.)

PAPANDREOU, A. G. *A test of a stochastic theory of choice.* Univ. of California pub. in econ., vol. 16, no. 1. (Berkeley: Univ. of California Press. 1957. Pp. 18. 50¢.)

ROHDE, K. E. *Gleichgewicht und Konjunkturtheorie—Grundsätzliche Bedeutung und analytische Anwendungen der Gleichgewichtsvorstellung für die theoretische Erklärung des Juglarzyklus und moderner konjunkturähnlicher Entwicklungsphänomene.* (Stuttgart: Gustav Fischer. 1957. Pp. xii, 236. DM 18, —.)

SEN, S. R. *The economics of Sir James Steuart.* (Cambridge: Harvard Univ. Press. 1957. Pp. vii, 207. $5.)

WINDING, P. *Some aspects of the acceleration principle.* Copenhagen School Econ. and Bus. Admin., Løbende Skriftaekker, Skriftraekke B, 16. (Copenhagen: Einar Harcks. Amsterdam: North-Holland. 1957. Pp. 254. *f* 30.50; $8.)

Istoriia russkoi ekonomicheskoi mysli. (History of Russian economic thought.) Vol. I, *The feudal period,* Pt. 1, *IX-XVIII centuries.* (Moscow: Akad. Nauk SSSR, Inst. Ekon. 1955. Pp. 755.)

Economic History; Economic Development; National Economies

ADLER, S. *The Chinese economy.* (New York: Monthly Review Press. 1957. Pp. xi, 276. $5.)

APPLEBY, P. H. *Re-examination of India's administrative system with special reference to administration of Government's industrial and commercial enterprises.* (New Delhi: Govt. of India Press. 1956. Pp. 59.)

BASTIN, J. *The native policies of Sir Stamford Raffles in Java and Sumatra—an economic interpretation.* (New York: Oxford Press. 1957. Pp. xx, 163. $4.80.)

BAUER, P. T. AND YAMEY, B. S. *The economics of under-developed countries.* (London: James Nisbet. Cambridge: Univ. Press. 1957. Pp. xiii, 271. 10*s* 6*d*.)

BERG, E. *The historical thinking of Charles A. Beard.* (Stockholm: Almqvist & Wiksell. 1957. Pp. 83. SKr. 3, —.)

BOH, L. T. *Problems of the Malayan economy—a series of radio talks.* Background to Malaya ser. no. 10. (New York: Inst. of Pacific Relations. 1957. Pp. 68. $1.)

CARTER, C. F. AND WILLIAMS, B. R. *Industry and technical progress—factors governing the speed of application of science.* (New York: Oxford Univ. Press. 1957. Pp. viii, 244. $4.)

This is a report prepared by two directors of research of the Science and Industry Committee (appointed by the Royal Society of Arts, the British Association for the Advancement of Science, and the Nuffield Foundation). The study has primary reference to Great Britain.

CLARK, C. *The conditions of economic progress.* 3d ed., largely rewritten. (London: Macmillan. New York: St. Martin's Press. 1957. Pp. xv, 720. $12.50.)

CREAMER, D., AND OTHERS. *Israel's national income 1950-1954.* Special ser. no. 57. (Jerusalem: Falk Project for Econ. Research in Israel and Central Bur. of Stat. 1957. Pp. 115. $2; IL 2.000.)

FOURASTIÉ, J. AND LALEUF, A. *Révolution à l'ouest.* (Paris: Presses Univ. de France. 1957. Pp. 235. 600 fr.)

GRAY, M. *The Highland economy, 1750-1850.* (Edinburgh and London: Oliver & Boyd. 1957. Pp. 280. 25*s*.)

GRODINSKY, J. *Jay Gould—his business career 1867-1892.* (Philadelphia: Univ. of Pennsylvania Press. 1957. Pp. 627. $10.)

ISLES, K. S. AND CUTHBERT, N. *An economic survey of Northern Ireland.* (Belfast: H. M. Stat. Off. 1957. Pp. xxv, 646. 35*s*.)

MEIER, G. M. AND BALDWIN, R. E. *Economic development—theory, history, policy.* (New York: John Wiley. London: Chapman & Hall. 1957. Pp. xix, 588. $8.50.)

MYRDAL, G. *Economic theory and under-developed regions.* (London: Duckworth. 1957. Pp. v, 168. 18s.)

ROBERTSON, H. M. *South Africa—economic and political aspects.* Duke Univ. Commonwealth-Stud. Center pub. no. 2. (Durham: Duke Univ. Press. London: Cambridge Univ. Press. 1957. Pp. x, 192. $3.50.)

SAKAI, S. *The theory of structural change of national economy.* Econ. ser. no. 12. (Tokyo: Div. of Econ. and Commerce, Sci. Council of Japan. 1956. Pp. 120. Gratis.)

"This book is an English translation of the first part of my previous volume titled 'Inquiries into the nature and causes of the structural change of national economy' published in Japanese in 1942. In that book I endeavored to make clear the quantitative and qualitative aspects of the long-run movement of national economy. At the time of my first writing there had been no systematic investigation of the subject so that my initial task was to establish a valid theoretical basis upon which to properly arrange relevant historical and statistical materials through which to explain such movement." (From the preface.)

STEIN, S. J. *The Brazilian cotton manufacture—textile enterprise in an underdeveloped area, 1840-1890.* (Cambridge: Harvard Univ. Press. 1957. Pp. xii, 273. $5.)

SUFRIN, S. C. AND PALMER, E. E. *The new St. Lawrence frontier—a survey of the economic potential in the St. Lawrence area of New York State.* (Syracuse: Syracuse Univ. Press. 1957. Pp. xiii, 98. $3.)

Architects and craftsmen in history—Festschrift für Abbott Payson Usher. (Tübingen: J. C. B. Mohr (Paul Siebeck). 1956. Pp. xiii, 172. DM16, —.)

Basic data on the economy of the U.S.S.R. (Washington: U.S. Bur. of Foreign Commerce. 1957. Pp. 55.)

Contribuições à análise do desenvolvimento econômico (escritos em homenagem a Eugênio Gudin). (Rio de Janeiro: Liv. Agir, for Inst. Brasileiro de Econ. da Fundação Getúlio Vargas. 1957. Pp. 354. Cr$ 300,00.)

The economic development of Jordan—report of a mission organized by the International Bank for Reconstruction and Development at the request of the Government of Jordan. (Baltimore: Johns Hopkins Press. 1957. Pp. xvi, 488. $7.50.)

8th report of the O.E.E.C.—Europe today and in 1960. Doc. no. C(57)18. (Paris: O.E.E.C. 1957. 2 vols.)

First five-year plan for development of the national economy of the People's Republic of China in 1953-1957. People's Republic of China—All China People's Congress. (Peking: Foreign Languages Press. 1956. Pp. 231.)

Japanese industry 1956. (Tokyo: Foreign Capital Research Society, Bank of Japan. 1957. Pp. 129.)

A socio-economic survey of Hyderabad—Secunderabad City area. Indian Inst. of Econ. ser. no. 9. (Hyderabad: Govt. Press. 1957. Pp. xx, 390. $2.25.)

Soviet economic growth—a comparison with the United States. A study prepared for the Subcommittee on Foreign Economic Policy of the Joint Economic Committee, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. xi, 149.)

Statistical survey of economy of Japan. (Tokyo: Ministry of Foreign Affairs. 1956. Pp. 47.)

Vers la promotion de l'économie indigène. Etud. Coloniales no. 3. (Brussels: Inst. Soc. Solvay. 1957. Pp. 608. 275 Bfr.)

Statistical Methods; Econometrics; Social Accounting

COCHRAN, W. G. AND COX, G. M. *Experimental designs.* 2nd ed. (New York: John Wiley. London: Chapman & Hall. Pp. xiv, 616. $10.25.)

DAVIDSON, D. AND SUPPES, P., in collab. with S. SIEGEL. *Decision making—an experimental approach.* (Stanford: Stanford Univ. Press. 1957. Pp. 121. $3.25.)

GILBERT, M. AND STONE, R., ed. *Income and wealth—series VI.* (London: Bowes & Bowes, for Internat. Assoc. for Research in Income and Wealth. 1957. Pp. xiv, 306. 42s.)

HIRSCH, W. Z. *Introduction to modern statistics—with applications to business and economics.* (New York: Macmillan. 1957. Pp. xiv, 429. $6.50.)

MIERNYK, W. H. *A primer of input-output economics.* Bus. and econ. educ. ser. no. 2. (Boston: Northeastern Univ., Bur. Bus. and Econ. Research. 1957. Pp. iii, 32. $1.)

Programme linéaire—agrégation et nombres indices. Cahiers du Séminaire d'Écon. no. 4. (Paris: Centre Nat. de la Recherche Sci. 1956. Pp. 146.)

Statistical abstract of the United States. 78th ed. U.S. Bur. of Census. (Washington: Supt. Docs. 1957. Pp. xvi, xx, 1045. $3.50.)

Economic Systems; Planning and Reform; Cooperation

FIACCADORI, A. *Alternative alla questione sociale.* Pub. della Facoltà di Econ. e Comm. dell'Università di Roma no. 4. (Milan: Giuffrè. 1957. Pp. 216. L. 1,000.)

FLEXNER, J. AND ERICKSON, A.-S. *Consumer cooperatives.* BLS bull. no. 1211. (Washington: Supt. Docs. 1957. Pp. 87.)

Pt. I deals with cooperatives in the United States; Pt. II covers those abroad.

HACKER, L. M. *American capitalism—its promise and accomplishment.* (New York: Van Nostrand. 1957. Pp. 190. $1.25 paper.)

LAJUGIE, J. *Les systèmes économiques.* "Que sais-je?" no. 753. (Paris: Presses Univ. de France. 1957. Pp. 126.)

Business Fluctuations

LUNDBERG, E. *Business cycles and economic policy.* Trans. by J. Potter. (Cambridge: Harvard Univ. Press. 1957. Pp. xx, 346. $6.50.)

The original version, *Konjunkturer och Ekonomisk Politik*, was published in Stockholm in 1953, and was reviewed in this journal, June 1954, XLIV, 440-43.

STUTZ, F. N. *Der Konjunkturtest—Neue Wege der Konjunkturdiagnose und -prognose.* Veroffentlichungen der Handels-Hochschule St. Gallen, no. 49. (Zurich: Polygraph. Verlag. 1957. Pp. xxiv, 291. 18.65 fr.)

The mechanics of inflation—an analysis of cost and demand pressures on the price level. (Washington: U. S. Chamber of Commerce. 1957. Pp. 69. $1.)

Productivity, prices and incomes. Materials prepared for the Joint Economic Committee by the Committee staff, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 281.)

Retail prices of food, 1955-56—indexes and average prices. BLS bull. no. 1217. (Washington: Supt. Docs. 1957. Pp. 37.)

Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

BAXTER, I. F. G. *The law of banking and the Canadian Bank Act.* (Toronto: Carswell. 1956. Pp. 395.)

BRECHER, I. *Monetary and fiscal thought and policy in Canada 1919-1939.* (Toronto: Univ. of Toronto Press. 1957. Pp. xii, 337. $5.25.)

BREHMER, E. *Struktur und Funktionsweise des Geldmarktes der Deutschen Bundesrepublik seit 1948.* Beiträge Wirtschaftstheorie, Seminar Univ. Kiel no. 1. (Tubingen: J. C. B. Mohr (Paul Siebeck). 1956. Pp. 124. DM 6,25.)

DURAND, D. *Bank stock prices and the bank capital problem.* Occas. paper 54. (New York: Nat. Bur. Econ. Research. 1957. Pp. xviii, 68. $1.)

HAMMOND, B. *Banks and politics in America from the Revolution to the Civil War.* (Princeton: Princeton Univ. Press. 1957. Pp. xi, 771. $12.50.)

OLIVECRONA, K. *The problem of the monetary unit.* (New York: Macmillan. 1957. Pp. 186. $3.)

Veit, O. *Die Veränderte Währungspolitik und Irhe Folgen.* (Frankfurt: Fritz Knapp, for Inst. f. das Kreditwesen, Johann Wolfgang Goethe-Universität. 1957. Pp. 182. DM 13,20.)

Wilson, J. S. G. *French banking structure and credit policy.* (Cambridge: Harvard Univ. Press. 1957. Pp. vii, 453. $8.50.)

Zolotas, X. *Bank of Greece—report for the year 1956.* Address by the Governor to 24th General Assembly of Shareholders, April 11, 1957. (Athens: Hellenic Pub. Co. for the Bank of Greece. 1957. Pp. 67.)

Annual report of the Federal Deposit Insurance Corporation for the year ended December 31, 1956. (Washington: Fed. Deposit Ins. Corp. 1957. Pp. xv, 159.)

Consumer instalment credit. Pt. IV, *Financing new car purchases—a national survey for 1954-55.* Board of Governors, Fed. Reserve System. (Washington: Supt. Docs. Pp. xii, 151. 60¢.)

Credit needs of small business. Hearings before a subcommittee of the Senate Committee on Banking and Currency, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 533.)

Financial Institutions Act of 1957—comparative print showing changes in existing law made by S. 1451 as passed by the Senate. House Committee on Banking and Currency, 85th Cong., 1st sess., May 24, 1957. (Washington: Supt. Docs. 1957. Pp. 275.)

Public Finance; Fiscal Policy

Byrd, J. A. *A selected and annotated bibliography of estate planning.* (Austin: Bur. Bus. Research, Univ. of Texas. 1957. Pp. viii, 41. 50¢.)

Eisner, G. *Kaufkraftübertragungen durch Öffentliche Finanzen—Ein Beitrag zur Theorie und Statistik der fiskalischen Einkommensredistribution.* (Winterthur: P. G. Keller. 1956. Pp. xvi, 128.)

Haller, H. *Finanzpolitik—Grundlagen und Hauptprobleme.* (Tübingen: J. C. B. Mohr (Paul Sieback). 1957. Pp. viii, 326. DM 25,—.)

Mahon, J. J., Jr., ed. *Working with the Revenue Code, 1957—selected comments from the* Journal of Accountancy's *Tax Clinic July 1954 to July 1957.* (New York: Am. Inst. Cert. Pub. Accountants. 1957. Pp. xxvi, 192. Cloth $3; paper $2.25.)

Taubman, J. *The joint venture and tax classification.* (New York: Fed. Legal Pub. 1957. Pp. xvii, 493.)

Budgeting and accounting. Hearing before the Subcommittee on Reorganization of the Senate Committee on Government Operations, 85th Cong., 1st sess., April 12, 1957. (Washington: Supt. Docs. 1957. Pp. 62.)

Étude comparative des budgets Néerlandais, Belge et Luxembourgeois ayant trait aux années 1953-1954-1955-1956. Rapport de la Comm. pour l'étude de la comparaison des budgets des institutions publiques et parastatales. (Brussels: L'Union Douanière Néerlando-Belgo-Luxembourgeoise. 1956. Pp. 113.)

Financial management in the Department of the Navy. Research rept. of the 1957 class, Navy Graduate Comptrollership Program. (Washington: George Washington Univ. 1957. Pp. 345.)

Fiscal policy implications of the economic outlook and budget developments. Hearings before the Subcommittee on Fiscal Policy of the Joint Economic Committee, 85th Cong., 1st sess., June 3, 4, 5, 6, 7, 13, and 14. (Washington: Supt. Docs. 1957. Pp. vi, 348.)

———. Report of the Joint Economic Committee, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. iii, 5.)

Improving federal budgeting and appropriations. Hearings before a subcommittee of the House Committee on Government Operations, 85th Cong., 1st sess., Mar. 26-Apr. 10, 1957. (Washington: Supt. Docs. 1957. Pp. 308.)

Reduction of nonessential federal expenditures—report on federal grants-in-aid to states and payments to individuals. Joint Committee on Reduction of Nonessential Federal Expenditures, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 618.)

Statement by the Secretary of the Treasury before the Senate Committee on Finance. (Washington: Supt. Docs. 1957. Pp. 50.)

Systematic debt reduction. Hearing before the Senate Committee on Finance, 85th Cong., 1st sess., June 11, 1957. (Washington: Supt. Docs. 1957. Pp. 68.)

Technical Amendments Act of 1957. Report of the House Committee on Ways and Means. (Washington: Supt. Docs. 1957. Pp. 111.)

International Economics

CROWTHER, G. *Balances and imbalances of payments.* George H. Leatherbee Lectures 1957. (Boston: Grad. School Bus. Admin., Harvard Univ. 1957. Pp. vii, 70. $2.)

The titles of the three lectures are: "The Nations' Patterns of Growth"; "One World? Or Two? Or Twenty?"; "The Scarce Dollar."

GRADIN, V. *Efeitos das taxas múltiplas de câmbio.* (Salvador, Brazil: Liv. Progresso Edit. 1957. Pp. 115. Cr$ 80,00.)

HARRIS, S. E. *International and interregional economics.* (New York: McGraw-Hill. 1957. Pp. xiv, 564. $7.)

MACDOUGALL, D. *The world dollar problem—a study in international economics.* (New York: St. Martin's Press. London: Macmillan. 1957. Pp. xvii, 622. $12.50.)

MATECKI, B. E. *Establishment of the International Finance Corporation and United States policy—a case study in international organization.* (New York: Praeger. 1957. Pp. xii, 194. $5.)

PUGH, O. S. *The Export-Import Bank of Washington.* Essays in econ. no. 5. (Columbia: Bur. Bus. and Econ. Research, Univ. of South Carolina. 1957. Pp. 58.)

RAMSAY, G. D. *English overseas trade during the centuries of emergence.* (London: Macmillan. New York: St. Martin's Press. 1957. Pp. x, 279. $6.)

"The expression 'centuries of emergence' I have used, for lack of any other, to describe the period between the close of the middle ages, somewhere in the late fifteenth century, and the series of revolutions, political and economic, that ushered in the modern world some three hundred years later." (From the foreword.)

SCAMMELL, W. M. *International monetary policy.* (New York: St. Martin's Press. London: Macmillan. 1957. Pp. xiv, 402. $9.)

VON BECKERATH, E., MEYER, F. W., AND MÜLLER-ARMACK, A. *Wirtschaftsfragen der Freien Welt.* 2nd ed. (Frankfurt: Fritz Knapp. 1957. Pp. xi, 633.)

VON MANGOLDT-REIBOLDT, H. K. *Währungspolitische Probleme der europäischen Wirtschaftsintegration.* Kieler Vorträge, n.F. 12. (Kiel: Inst. f. Weltwirtschaft, Univ. of Kiel. 1957. Pp. 18.)

WERNER, J. *Die Wirtschaftsverbände in der Marktwirtschaft.* St. Galler Wirtschaftswissenschaftliche Forschungen, vol. 12. (Zurich: Polygraph. Verlag. 1957. Pp. xii, 231.)

ZUPNICK, E. *Britain's postwar dollar problem.* (New York: Columbia Univ. Press. 1957. Pp. xv, 256. $5.50.)

Administration and operation of customs and tariff laws and the trade agreements program. Overseas conference. Hearings before the Subcommittee on Customs, Tariffs and Reciprocal Trade Agreements of the House Committee on Ways and Means, 84th Cong., 2nd sess. Pt. 4. (Washington: Supt. Docs. 1957. Pp. 373.)

Economic aid and technical assistance in Africa—report of Senator Theodore Francis Green on a study mission. (Washington: Supt. Docs. 1957. Pp. 34.)

European integration and social security. Pub. no. 23. (Brussels: European League for Econ. Co-op. 1957. Pp. 57.)

Foreign aid program—compilation of studies and surveys prepared under the direction of the Senate Special Committee to Study the Foreign Aid Program. (Washington: Supt. Docs. 1957. Pp. 1582.)

The foreign aid program. Hearings before the Special Senate Committee to Study the Foreign Aid Program, 85th Cong., 1st sess., Mar. 20-Apr. 15, 1957. (Washington: Supt. Docs. 1957. Pp. 745.)

Foreign trade of Honduras, 1945-1951. Internat. trade of the American states, bull. no. 2. (Washington: Pan Am. Union. 1957. Pp. 66.)

Government competition with private business—1957. Hearings before a subcommittee of the Senate Select Committee on Small Business, 85th Cong., 1st sess., Apr. 16-May 22, 1957. (Washington: Supt. Docs. 1957. Pp. 104.)

The importance of foreign trade to the United States economy. (New York: U.S. Council, Internat. Chamber of Commerce. 1957. Pp. 36. 30¢.)

International bibliography of public administration. (New York: UN, Technical Assistance Program. 1957. Pp. 101.)

International trade—1956. GATT/1957-2. (Geneva: General Agreement on Tariffs and Trade. 1957. Pp. 278. $2.)

The fifth annual report prepared by the GATT secretariat. Part I is an analysis of recent developments in the structure and pattern of international trade. Part II examines developments in commercial policy. Part III sets out the principal activities of the contracting parties to the General Agreement during the period under review—particularly the business completed at their 11th session, Oct. 11 to Nov. 27, 1956.

The Mutual Security Act of 1957. Pt. 1, *Report of the Senate Committee on Foreign Relations.* Pt. 2, *Minority views; supplementary views of Mr. Long.* 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 64; 12.)

———. *Hearings before the Senate Committee on Foreign Relations, 85th Cong., 1st sess.* Pt. 2. (Washington: Supt. Docs. 1957. Pp. 27.)

———. *Hearings before the House Committee on Foreign Affairs, 85th Cong., 1st sess., May 28, 29 and June 5, 1957.* Pts. II, III, IV and V. (Washington: Supt. Docs. 1957. Pp. 169; 229; 141; 353.)

The Mutual Security Program: fiscal year 1958—a summary presentation June 1957. (Washington: Supt. Docs. 1957. Pp. v, 149.)

Regulations concerning dealings in gold and foreign exchange in France. 18th suppl. (in French). (Basle: Bank for Internat. Settlements. 1957. Pp. 160. Sw.fr. 15.)

Regulations issued by Switzerland regarding its payments with various countries. 10th suppl. (Basle: Bank for Internat. Settlements. 1957. Pp. 110. Sw.fr. 10.)

Report on United States customs, tariff, and trade agreement laws and their administration. By the Subcommittee on Customs, Tariffs, and Reciprocal Trade Agreements of the House Committee on Ways and Means. (Washington: Supt. Docs. 1957. Pp. 223.)

The strategic trade control system, 1948-1956. Mutual Defense Assistance Control Act of 1951, 9th rept. to Congress by the director of the International Cooperation Administration. (Washington: Supt. Docs. 1957. Pp. v, 115.)

The United Nations specialized agencies. Report of the Subcommittee on International Organizations and Movements of the House Committee on Foreign Affairs, 85th Cong., 1st sess., July 1, 1957. (Washington: Supt. Docs. 1957. Pp. 51.)

The World Bank—policies and operations. (Washington: Internat. Bank for Reconstruction and Development. 1957. Pp. 139.)

Business Finance; Investment and Security Markets; Insurance

Loeb, G. M. *The battle for investment survival.* (New York: Simon & Schuster. 1957. Pp. 311. $3.95.)

Patterson, E. W. *Essentials of insurance law—an outline of legal doctrines in their relations to insurance practices.* 2nd ed. (New York: McGraw-Hill. 1957. Pp. xiv, 558. $7.50.)

Terborgh, G. *Corporate profits in the decade 1947-56.* (Washington: Machinery & Allied Prod. Inst. 1957. Pp. 27. $1.25.)

Cost of flotation of corporate securities 1951-1955. Securities and Exchange Comm., Div. of Trading and Exchanges. (Washington: Supt. Docs. 1957. Pp. 76.)

SEC legislation. Hearings before a subcommittee of the Senate Committee on Banking and Currency, May 20-24, 27, 29, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 272.)

Business Organization; Managerial Economics; Marketing; Accounting

Bergfeld, A. J., Earley, J. S., and Knobloch, W. R. *Pricing for profit and growth.* Consultant repts. on current business problems. (New York: McGraw-Hill. 1957. Pp. 188, ll.)

Berliner, J. S. *Factory and manager in the USSR.* (Cambridge: Harvard Univ. Press. 1957. Pp. xv, 386. $7.50.)

Colberg, M. R., Bradford, W. C. and Alt, R. M. *Business economics—principles and cases.* Rev. ed. (Homewood, Ill.: Irwin. 1957. Pp. x, 537. College price $6.95.)

Daniells, L. M., comp. *Studies in enterprise.* A selected bibliography of American and Canadian company histories and biographies of businessmen. (Boston: Grad. School Bus. Admin., Harvard Univ. 1957. Pp. xiv, 169.)

Myer, J. N. *Accounting for non-accountants—key to an understanding of accounting.* (New York: New York Univ. Press. 1957. Pp. ix, 235. $5.)

Nishikawa, K. *Origin of "cash method bookkeeping" in Japan.* Econ. ser. no. 11. (Tokyo: Div. Econ. and Commerce, Sci. Council of Japan. 1957. Pp. 23. Gratis.)

Noble, H. S. and Niswonger, R. *Accounting principles.* 7th ed. (Cincinnati: South-Western Pub. 1957. Pp. x, 742. $6.)

Oaks, C. L. *Managing suburban branches of department stores.* Bus. research ser. no. 10. (Stanford: Grad. School of Business, Stanford Univ. 1957. Pp. v, 89. $2.50.)

Thompson, R. B. *A selected and annotated bibliography of marketing research.* (Austin: Bur. Bus. Research, Univ. of Texas. 1957. Pp. v, 41. 50¢.)

Market research methods in Europe. European Productivity Agency, Project no. 261. (Paris: O.E.E.C. 1956. Pp. 189.)

Proceedings of the Operations Research Conference, 1956. (New York: Soc. for Advancement of Management. 1957. Pp. 168.)

Textile Fiber Products Identification Act. Hearings before a subcommittee of the House Committee on Interstate and Foreign Commerce, 85th Cong., 1st sess., April 4, 5, 11, 12, and 29, 1957. (Washington: Supt. Docs. 1957. Pp. 261.)

Industrial Organization; Government and Business; Industry Studies

Adams, W. and Hendry, J. B. *Trucking mergers, concentration, and small business—an analysis of Interstate Commerce Commission policy, 1950-56.* Report prepared for the Senate Select Committee on Small Business, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. v, 154.)

Basu, S. K. *Place and problems of small industries.* (Calcutta: A. Mukherjee & Co. 1957. Pp. 97. Rs 4/—.)

Borchardt, K. and Fikentscher, W. *Wettbewerb Wettbewerbsbeschränkung Marktbeherrschung.* Abhandlungen aus dem gesamten Handelsrecht, Bürgerlichen Recht und Konkursrecht no. 24. (Stuttgart: Ferdinand Enke. 1957. Pp. viii, 84. DM 7,80.)

Dales, J. H. *Hydroelectricity and industrial development—1898-1940.* (Cambridge: Harvard Univ. Press. 1957. Pp. xii, 269. $5.50.)

Glaeser, M. G. *Public utilities in American capitalism.* (New York: Macmillan. 1957. Pp. xiii, 624. $7.50.)

Hague, D. C. *The economics of man-made fibres.* (London: Duckworth. 1957. Pp. 315. 30s.)

LEHMANN, R. *Zur Problematik der Integration der europäischen Elektrizitätswirtschaft.* Beiträge Wirtschaftstheorie, Seminar Univ. Kiel no. 2. (Tübingen: J. C. B. Mohr (Paul Siebeck). 1957. Pp. 120. DM 6,25.)

PERLO, V. *The empire of high finance.* (New York: Internat. Pub. 1957. Pp. 351. $5.50.)

REYNOLDS, A. R. *The Daniel Shaw Lumber Company—a case study of the Wisconsin lumbering frontier.* (New York: New York Univ. Press. 1957. Pp. x, 177. $5.)

ROBSON, R. *The cotton industry in Britain.* (New York: St. Martin's Press. London: Macmillan. 1957. Pp. xx, 364. $10.)

TAYLOR, F. S. *A history of industrial chemistry.* (New York: Abelard-Schuman. 1957. Pp. xvi, 467. $7.50.)

To amend section 2 of the Clayton Act. Hearings before the Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary, 85th Cong., 1st sess., Mar. 27-29, Apr. 2-5, 1957. Pt. 2. (Washington: Supt. Docs. 1957. Pp. 790.)

Concentration in American industry. Report of the Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 756.)

Distribution practices in the petroleum industry. Hearing before Subcommittee No. 5 of the House Select Committee on Small Business, 85th Cong., 1st sess., Apr. 16, 1957. Pt. II. (Washington: Supt. Docs. 1957. Pp. 126.)

Economic concentration measures—uses and abuses. A session of the 41st annual meeting of the Conference Board, New York City, May 17, 1957. Stud. in bus. econ. no. 57. (New York: Nat. Indus. Conf. Board. 1957. Pp. 55.)

Government competition with private business—1957. Hearings before a subcommittee of the Senate Select Committee on Small Business, 85th Cong., 1st sess., Apr. 16 and May 22, 1957. (Washington: Supt. Docs. 1957. Pp. 104.)

Natural Gas Act amendments of 1957. Report of the House Committee on Interstate and Foreign Commerce, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 62.)

Prospects for economic nuclear power. Stud. in bus. policies no. 83. (New York: Nat. Indus. Conf. Board. 1957. Pp. 77.)

Report of the Antitrust Subcommittee of the House Committee on the Judiciary, 85th Cong., 1st sess., authorizing the Committee on the Judiciary to conduct studies and investigations relating to certain matters within its jurisdiction on the television broadcasting industry, Mar. 13, 1957. (Washington: Supt. Docs. 1957. Pp. 148.)

Report on industrial concentration and product diversification in the 1,000 largest manufacturing companies—1950. (Washington: Fed. Trade Comm. 1957. Pp. 656.)

Small Business Act. Hearings before the House Committee on Banking and Currency, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. 297.)

The Small Business Administration. Pt. 2, *Appendix to hearings before Subcommittee No. 2 of the House Select Committee on Small Business, 85th Cong., 1st sess.* (Washington: Supt. Docs. 1957. Pp. 158.)

Surface transportation (ratemaking legislation). Hearings before a subcommittee of the House Committee on Interstate and Foreign Commerce, 85th Cong., 1st sess., Apr. 2-5, 10, 11, 1957. (Washington: Supt. Docs. 1957. Pp. 487.)

Land Economics; Agricultural Economics; Economic Geography; Housing

CARSKADON, T. R. AND SOULE, G. *USA in new dimensions—the measure and promise of America's resources—a survey.* (New York: Macmillan, for Twentieth Century Fund. 1957. Pp. 124.)

CHAPIN, F. S., JR. *Urban land use planning.* (New York: Harper. 1957. Pp. xv, 397. $8.)

CHURCH, R. J. H. *West Africa—a study of the environment and of man's use of it.* (New York: Longmans, Green. 1957. Pp. xxvii, 547. $8.75.)

DEHAVEN, J. C. AND HIRSHLEIFER, J. *Feather River water for Southern California.* P-1034-RC. (Santa Monica: RAND Corp. 1957. Pp. 27.)

GRAMM, W. S. *Electric power and development of Northern California—report prepared for Assembly Interim Committee on Conservation, Planning and Public Works.* Com. rept. XIII (18). (Sacramento: Calif. State Assembly. 1957. Pp. 176.)

HORTON, D. C. *Patterns for farm financial structure—a cross-section view of economic and physical determinants.* Stud. in agric. fin. no. 2. (Princeton: Nat. Bur. Econ. Research, Fin. Research Program. 1957. Pp. 185.)

JAWETZ, M. B. *Farm size, farming intensity, and the input-output relationships of some Welsh and West of England dairy farms—a study in the application of marginal and some more advanced economic analysis.* (Aberystwyth: Dept. Agric. Econ., Univ. College of Wales. 1957. Pp. 84. 7s 6d.)

KROHN, H.-B. *Die Futtergetreidewirtschaft der Welt 1900-1954—Eine Untersuchung über die Entwicklung von Angebot und Nachfrage in der getreideverwertenden Veredlungsproduktion im wirtschaftlichen Wachstumsprozess.* n.F., no. 165. (Hamburg: Paul Parey. 1957. Pp. 144. DM 10,—.)

KUO-CHÜN, C. *Agrarian policies of Mainland China—a documentary study (1949-1956).* (Cambridge: Harvard Univ. Press. 1957. Pp. xiii, 276, mimeo.)

PURDY, R. J. *Farmers—what now?* (New York: Pageant Press. 1957. Pp. 76. $2.50.)

SCHOFF, L. H. *A new outlook and a new culture for rural America.* (New York: Teachers College, Columbia Univ. 1957. Pp. vii, 38. $1.)

SHIDELER, J. H. *Farm crisis—1919-1923.* (Berkeley: Univ. of California Press. 1957. Pp. x, 345. $5.)

TURVEY, R. *The economics of real property—an analysis of property values and patterns for use.* (London: Allen & Unwin. 1957. Pp. 150. 16s.)

WOODWARD, G. M. *Commercial fisheries of North Carolina—an economic analysis.* (Chapel Hill: Bur. Bus. Serv. and Research, Univ. of North Carolina. 1956. Pp. xix, 153. $2.)

The availability of raw cotton in Western Europe. (Manchester: Internat. Fed. of Cotton and Allied Textile Indus. 1957. Pp. 23.)

The disintegrating village—report of a socio-economic survey conducted by the University of Ceylon. Pt. I. (Colombo: Ceylon Univ. Press Board. 1957. Pp. xvi, 83.)

The implications of technical change in agriculture—proceedings of the Ninth International Conference of Agricultural Economists, held at Teekkarikyla, Otaniemi, Finland, 19-27 August 1955. (New York: Oxford Univ. Press. 1956. Pp. xiii, 571.)

Labor Economics

ADAMS, L. P. AND ARONSON, R. L. *Workers and industrial change—a case study of labor mobility.* Stud. in indus. and labor relations, vol. VIII. (Ithaca: New York State School of Indus. and Labor Relations, Cornell Univ. 1957. Pp. xi, 209. $4.50.)

A study and analysis of the experience of workers in Auburn, New York, following the shut-down of the works of International Harvester Company in that city in 1950. The study was designed to examine the process by which workers adjust to major types of industrial change, to evaluate the effectiveness of various means of helping workers adjust to loss of jobs, and to test the validity of some earlier findings on worker mobility.

BECKER, G. S. *The economics of discrimination.* (Chicago: Univ. of Chicago Press. 1957. Pp. x, 137. $3.50.)

BLANK, D. M. AND STIGLER, G. J. *The demand and supply of scientific personnel.* No. 62, gen. ser. (New York: Nat. Bur. Econ. Research. 1957. Pp. xix, 200. $4.)

CLEGG, H. A. AND CHESTER, T. E. *Wage policy and the Health Service.* (Oxford: Basil Blackwell. 1957. Pp. viii, 141. 18s 6d.)

"The purpose of this study is to try to answer two questions: Can the Whitley system of the National Health Service be improved? and: Does the centralized system of determining wages and salaries in the National Health Service shed light on the possibility and desirability of a national wage policy for Britain?" (From the Introduction.)

Fourastié, J. ***Productivity prices and wages.*** Project no. 235. (Paris: European Productivity Agency, O.E.E.C. 1957. Pp. 113. $1.50.)

"Professor Fourastié . . . has developed his own method for measuring long-term productivity trends. His very original approach bypasses the statistical problems of 'matching' production and employment figures, which form the main difficulties encountered by those who take the more orthodox approach. The procedure he uses may perhaps be termed the 'indirect method,' since he starts with the ratio between output and input, which is the direct definition of productivity.

"It is still too early to pass any final judgment on the theoretical significance or the practical usefulness of the methods developed by Professor Fourastié. His underlying assumption is clearly that prices and wages are both determined solely by the state of technical progress. In the long run this may be a plausible assumption, but for shorter periods it is obviously an over-simplification, which, nevertheless, might yield results deepening our understanding of the problems involved." (From the preface by Roger Grégoire.)

Johannessen, E. ***The Hawaiian labor movement—a brief history.*** (Boston: Bruce Humphries. 1956. Pp. 181. $3.75.)

Leiter, R. D. ***The Teamsters Union—a study of its economic impact.*** (New York: Bookman Assoc. 1957. Pp. 304. $5.)

Levitan, S. A. ***Federal assistance to labor surplus areas.*** A report prepared at the request of the chairman of the House Committee on Banking and Currency, 85th Cong., 1st sess. (Washington: Supt. Docs. 1957. Pp. iv, 89.)

Nydegger, A. ***Die wirtschaftliche Bedeutung der Allgemeinverbindlicherklaerung von Gesamtarbeitsvertraegen in der Schweiz.*** (Zurich: Polygraphischer Verlag. 1957. Pp. 198. 12.45 Sw.fr.)

Reder, M. W. ***Labor in a growing economy.*** (New York: John Wiley. London: Chapman & Hall. 1957. Pp. xii, 534. $6.50.)

Shurcliff, A. W., comp. ***Labor in Cuba.*** BLS Foreign Labor Information ser. (Washington: Supt. Docs. 1957. Pp. 26.)

Analysis of work stoppages, 1956. BLS bull. no. 1218. (Washington: Supt. Docs. 1957. Pp. 35.)

Costs, operations and procedures under the Workmen's Compensation Law of the State of New York—report by the Commissioner. (Albany: Comm. to Study, Examine and Investigate the Cost of Workmen's Compensation under the Workmen's Compensation Law of the State of New York. 1957. Pp. 142.)

Effective utilization of engineering personnel. Proceedings of a conference sponsored by the Michigan State Univ.; Labor and Indus. Relations Center and College of Engineering and the Michigan Soc. of Professional Engineers, at Michigan State Univ., Mar. 29 and 30, 1957. (East Lansing: Labor and Indus. Relations Center, Michigan State Univ. 1957. Pp. ii, 53, $1.)

Employment and economic status of older men and women. BLS bull. no. 1213 (rev. bull. no. 1092). (Washington: Supt. Docs. 1957. Pp. 41.)

His Royal Highness the Duke of Edinburgh's Study Conference on the Human Problems of Industrial Communities within the Commonwealth and Empire, Oxford, 1956. Vol. I, ***Report and proceedings.*** Vol. II, ***Background papers, appendixes and index.*** (New York: Oxford Univ. Press. 1957. Pp. xii, 338; xv, 339. 42s net.)

The papers presented at the Conference were on such topics as: The Impact of Industrialization, The Varying Pattern of Industry—A General Survey, The Human Problems of Industry. There are also several papers on similar problems in other countries of the Commonwealth. Volume II contains 24 background papers—mainly on problems of labor, economic development, and industrialization in various countries of the Commonwealth.

Introduction to work study. (Geneva: Internat. Labour Off. 1957. Pp. xv, 349. $3.50.)

Investigation of improper activities in the labor or management field. Hearings before the Senate Select Committee on Improper Activities in the Labor or Management Field, 85th Cong., 1st sess. Pt. 7. (Washington: Supt. Docs. 1957. Pp. 587.)

Organisation of occupational health services in places of employment. Internat. Labour Conf., 42nd sess., rept. VI(1). (Geneva: Internat. Labour Off. 1957. Pp. 53. 50¢.)

Report of the Director-General. Pt. I. *Automation and other technological developments—labour and social implications.* Internat. Labour Conf., 40th sess. Rept. I(1). (Geneva: Internat. Labour Off. 1957. Pp. ix, 105. $1.)

Report relative to means of absorbing the labor surplus in older age groups. (Boston: Wright & Print. Co. 1957. Pp. 64.)

Second injury funds—standards and patterns in state legislations. BLS bull. no. 190. (Washington: Supt. Docs. 1957. Pp. 61.)

Studies of the economic effects of the $1.00 minimum wage. Interim report prepared by the Wage and Hour and Public Contracts Divs. (Washington: Supt. Docs. 1957. Pp. 109.)

Studies of the effects of the $1. minimum wage—locality studies. BLS rpt. no. 114. (Washington: Supt. Docs. 1957.)

The use made in French industry of inter-firm comparisons carried out in the United States and in France. Spec. no. *Productivity Measurement Review,* April 1957. (Paris: O.E.E.C. 1957. Pp. 50. 50¢.)

Welfare and pension plans legislation. Hearings before the Subcommittee on Welfare and Pension Plans Legislation of the Senate Committee on Labor and Public Welfare, 85th Cong., 1st sess., May 27, 29, June 6-28 and July 1, 1957. (Washington: Supt. Docs. 1957. Pp. 727.)

Population; Welfare Programs; Standards of Living

Bogue, D. J., Shryock, H. S., Jr., and Hoermann, S. A. *Subregional migration in the United States, 1935-40.* Vol. I, *Streams of migration between subregions—a pilot study of migration flows between environments.* Stud. in population distribution no. 5. (Oxford: Miami Univ. 1957. Pp. vi, 333. $5.25.)

Coontz, S. H. *Population theories and the economic interpretation.* (New York: Humanities Press. 1957. Pp. 200. $5.)

Feldman, F. L. *The family in a money world.* (New York: Family Ser. Assoc. of Am. 1957. Pp. iv, 188. $2.50.)

Lee, E. S., Miller, A. R., Brainerd, C. P., and Easterlin, R. A. *Population redistribution and economic growth—United States, 1870-1950.* Vol. I, *Methodological considerations and reference tables.* (Philadelphia: Am. Phil. Soc. 1957. Pp. xix, 759. $5.)

This is the first of a two-volume study prepared by the University of Pennsylvania Studies of Population Redistribution and Economic Growth under the direction of Professors Simon Kuznets and Dorothy Swaine Thomas.

Stassart, J. *Malthus et la population.* Coll. sci. no. 6. (Liège: Faculté de Droit, Univ. of Liège. 1957. Pp. 342. Bfr. 250.)

Treadgold, D. W. *The great Siberian migration—government and peasant in resettlement from emancipation to the First World War.* (Princeton: Princeton Univ. Press. 1957. Pp. xiii, 278. $5.)

Consumer services of the State of New York. Pt. I, *How much legal protection does New York State give the consumer?* Pt. II, *Consumer laws in action.* (Albany: Consumer Counsel to the Governor. 1957. Pp. 58; 79.)

Social welfare expenditures and their financing—New York City. (New York: Bur. Community Stat. Serv., Community Council of Greater New York. 1957. Pp. x, 136. $3.)

Systems of social security—Great Britain. (Geneva: Internat. Labour Off. 1957. Pp. xi, 73. 60¢.)

Related Disciplines

CLEVELAND, H., AND MANGONE, G. J., ed. *The art of overseasmanship—Americans at work abroad.* (Syracuse: Syracuse Univ. Press. 1957. Pp. xvii, 150. $3.)

DOWNS, A. *An economic theory of democracy.* (New York: Harper. 1957. Pp. viii, 310. $4.50.)

FITZSIMMONS, T., ed. *RSFSR—Russian Soviet Federated Socialist Republic.* Vols. I and II. Country survey ser. (New Haven: Human Relations Area Files. 1957. Pp. xii, 310; iii, 350. $9.75.)

GIBBS, H. A. R. AND BOWEN, H. *Islamic society and the West—a study of the impact of western civilization on Moslem culture in the Near East.* Vol. I, *Islamic society in the eighteenth century, pt. 2.* (New York: Oxford Univ. Press, for Royal Inst. Internat. Affairs. Pp. v, 285. $5.60.)

HARRIS, G. L., ED. *Egypt.* (New Haven: Human Relations Area Files, Yale Univ. 1957. Pp. xii, 370. $8.)

KING, F. H. H. *The new Malayan nation—a study of communalism and nationalism.* (New York: Inst. of Pacific Relations. 1957. Pp. xii, 89. $2.)

KOHR, L. *The breakdown of nations.* (New York: Rinehart. 1957. Pp. xii, 244. $6.)

PARRILLO, F. *Contributo alla teoria della politica economica.* Storia e Dottrine Econ. no. 11. (Turin: Unione Tipografico. 1957. Pp. xv, 303. L. 2400.)

ROSS, R. AND VAN DEN HAAG, E. *The fabric of society—an introduction to the social sciences.* (New York: Harcourt, Brace. 1957. Pp. xv, 777.)
Sixteen chapters are devoted to "Economic Aspects of Society."

SCOTT, K. J., ED. *Welfare in New Zealand.* Stud. in pub. admin. no. 3. (New York: Oxford Univ. Press. 1956. Pp. 130. $2.50.)

SEELEY, J. R., and others. *Community Chest—a case study in philanthropy.* (Toronto: Univ. of Toronto Press. 1957. Pp. ix, 593. $7.50.)

TINKER, H. *The Union of Burma—a study of the first years of independence.* (New York: Oxford Univ. Press, for Royal Inst. Internat. Affairs. 1957. Pp. xiv, 424. $6.75.)

WALTERS, R., JR. *Albert Gallatin—Jeffersonian financier and diplomat.* (New York: Macmillan. 1957. Pp. ix, 461. $7.)

Index of publications of bureaus of business and economic research—1950-1956. (Eugene: Assoc. of Univ. Bur. Bus. and Econ. Research, Univ. of Oregon. 1957. Pp. 110. $2.)

Revision of the United Nations Charter—a symposium. (New York: Oxford Univ. Press. New Delhi: Indian Council of World Affairs. 1957. Pp. vi, 145. $1.70.)

PERIODICALS

General Economics; Methodology

de Finetti, B. *L'informazione, il ragionamento, l'inconscio nei rapporti con la previsione.* L'industria, Apr.-June 1957. Pp. 25.

Demaria, G. *La probabilité comme guide dans la recherche et la confirmation des lois universelles.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 8.

———. *Sulla conferma delle proposizioni deduttive a mezzo della probabilità empirica.* L'industria, Apr.-June 1957. Pp. 5.

Fossati, E. *Note sur une approche probabiliste à la théorie économique.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 18.

Fréchet, M. *Les vrais et les faux dangers de la méthode mathématique en économie politique et les insuffisances de la méthode mathématique.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 13.

———. *Vues générales sur l'application du calcul des probabilités en économie politique.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 6.

Greenwald, W. I. *Common irrelevancies in contempory theorizing by economists.* Kyklos, 1957, X (3). Pp. 15.

Perroux, F. *La propagation de l'information économique dans la societé moderne.* L'industria, Apr.-June 1957. Pp. 12.

Thionet, M. *Note sur l'emploi du calcul des probabilités en économie politique.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 20.

Wernet, W. *Personales und instrumentales Wirtschaften. Problementfaltung und Problemdiskussion in der Gewerbeforschung, speziell im Handwerksbereich,* (IV). Schmollers Jahrb., 1957, LXXVII (3). Pp. 34.

Wiles, P. J. D. *Changing economic thought in Poland.* Oxford Econ. Papers, June 1957. Pp. 19.

Yeager, L. B. *Measurement as scientific method in economics.* Am. Jour. Econ. Soc., July 1957. Pp. 10.

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

Alschner, G. *Rationalität und Irrationalität in den wirtschaftlichen Handlungen und ihre Erfassung durch die Wirtschaftstheorie.* Schmollers Jahrb., 1957, LXXVII (4). Pp. 52.

Anderson, O., Fürst, H. and Schulte, W. *Zur Analyse der unternehmerischen Reaktionsweise.* (With English summary.) Ifo-Stud., 1956, II (2). Pp. 26.

Bailey, M. J. *Saving and the rate of interest.* Jour. Pol. Econ., Aug. 1957. Pp. 27.

Bandeen, R. A. *Automobile consumption, 1940-1950.* Econometrica, Apr. 1957. Pp. 10.

Baudin, L. *Albert Aftalion (1874-1956).* Kyklos, 1957, X (3). Pp. 4.

Bernstein, P. L. *Is long-term inflation inevitable?* Harvard Bus. Rev., July-Aug. 1957. Pp. 7.

Bertolino, A. *La politica economica di Woodrow Wilson.* Studi Econ., May-Aug. 1957. Pp. 15.

Blau, J. H. *The existence of social welfare functions.* Econometrica, Apr. 1957. Pp. 12.

Bowman, M. J. *Quelques résultats marquants des enquêtes américaines sur les anticipations des entrepreneurs.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 36.

———. *La théorie de l'horizon économique et des longeurs d'anticipation dans la formation dynamique du plan de la firme.* With an *Introduction* by M. Byé. Écon. Appliquée, Jan.-Mar. 1957. Pp. 36.

BRAICOVICH, G. *La scelta del procedimento contabile d'ammortamento in un'impresa industriale.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., June 1957. Pp. 33.

BREIMYER, H. F. *On price determination and aggregate price theory.* Jour. Farm Econ., Aug. 1957. Pp. 19.

CANTARELLI, D. *Dati, strutture, propagatori. Esame critico-comparativo.* Giorn. d. Econ., Mar.-Apr. 1957. Pp. 15.

CANTELLI, F. P. *Sur les difficultés qui se présentent quand on se fonde sur des considérations de probabilités pour en déduire des lois de fréquence.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 9.

CASSADY, R., JR. *The New York department store price war of 1951: a microeconomic analysis.* Jour. Marketing, July 1957. Pp. 9.

CHAKRAVARTY, S. *The matrix extension of the multiplier.* Indian Econ. Rev., Feb. 1957. Pp. 12.

CHERUBINO, S. *Sulle economie bipartite.* Giorn. d. Econ., Mar.-Apr. 1957. Pp. 12.

CLARK, C. *An international comparison of "over-employment" trends in money wages.* Oxford Econ. Papers, June 1957. Pp. 12.

CLARK, J. M. *Wheat price stabilization and growers' incomes.* Quart. Rev. Agric. Econ., Apr. 1957. Pp. 5.

COLEMAN, D. C. *Eli Heckscher and the idea of mercantilism.* Scan. Econ. Hist. Rev., 1957. V (1). Pp. 23.

D'ADDARIO, R. *Contributo allo studio della ripartizione della ricchezza.* L'industria, Apr.-June 1957. Pp. 9.

D'IPPOLITO, G. *La teoria della sostituzionalità fra impianto e scorta.* Econ. Internaz., Feb. 1957. Pp. 29.

DOWSETT, W. T. *Spatial competition and sheltered industries.* Econ. Record, Apr. 1957. Pp. 8.

ECKAUS, R. S. *The stability of dynamic models.* Rev. Econ. Stat., May 1957. Pp. 11.

FEDERMAN, D. M. *La crisi del capitalismo moderno. Domanda complessiva inadeguata?* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., June 1957. Pp. 25.

GALBRAITH, J. K. *Market structure and stabilization policy.* Rev. Econ. Stat., May 1957. Pp. 10.

GEHRELS, F. *Factor substitution, consumer wealth, and growth stability.* Am. Econ. Rev., Sept. 1957. Pp. 9.

GILBERT, J. C. *The compatibility of any behaviour of the price level with equilibrium.* Rev. Econ. Stud., June 1957. Pp. 8.

GINI, G. *Au sujet de l'utilité et de la limitation de l'emploi du calcul des probabilités en économie politique.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 8.

HANSEN, A. H. *Trends and cycles in economic activity.* Rev. Econ Stat., May 1957. Pp. 11.

HOUTHAKKER, H. S. *Can speculators forecast prices?* Rev. Econ. Stat., May 1957. Pp. 9.

JOHNSON, H. G. *Notes on economic development and maximum rate of growth.* Malayan Econ. Rev., Apr. 1957. Pp. 7.

KEMP, M. C. *Index numbers and demand analysis.* Rev. Econ. Stud., June 1957. Pp. 5.

KENEN, P. B. *On the geometry of welfare economics.* Quart. Jour. Econ., Aug. 1957. Pp. 22.

KITTRELL, E. R. *Ricardo and taxation of economic rents.* Am. Jour. Econ. Soc., July 1957. Pp. 12.

Koyck, L. M. and Kuhlo, K. C. *Die Produktionsfunktionsberechnung bei fehlerhafter und fehlender Sachkapitalbestandsstatistik.* (With English summary.) Ifo-Stud., 1956, II (2). Pp. 14.

Kuhlo, K. C. *Die Qualität als Instrumentalvariable beim Vollkostenprinzip.* (With English summary.) Ifo-Stud., 1956, II (2). Pp. 17.

Labini, P. S. *Prezzi relativi e programmi di sviluppo.* Giorn. d. Econ., May-June 1957. Pp. 30.

Lhomme, J. *L'influence intellectuelle d'Albert Aftalion, suivi d'une liste des travaux d'Albert Aftalion par J. Lecaillon et G. Hosmalin.* Rev. Écon., May 1957. Pp. 14.

Linnamo, J. *Kansantalouden kirjanpitojärjestelmiin perustuvien ekonometristen raha- ja reaalitaloudellisten mallien konstruointimahdollisuuksista.* (With English summary.) Kansantaloudellinen Aikakauskirja, 1957 (2). Pp. 18.

Lombardini, S. *Il problema del prezzo nella teoria economica e nelle techniche aziendali.* (With English summary.) Risparmio, June 1957. Pp. 20.

Malécot, G. *Sur les oscillations aléatoires des systèmes économiques.* Écon. Appliquée, Jan.-Mar. 1957. Pp. 10.

Marchal, J. and Lecaillon, J. *Les catégories de participants à la répartition du revenu national. Étude critique des catégories classiques.* L'industria, Apr.-June 1957. Pp. 8.

Marshall, H. D. *Monopolistic competition and self-alienation.* Pol. Sci. Quart., Sept. 1957. Pp. 10.

McKenzie, L. *Demand theory without a utility index.* Rev. Econ. Stud., June 1957. Pp. 5.

Mills, E. S. *The theory of inventory decisions.* Econometrica, Apr. 1957. Pp. 17.

Mishan, E. J. *An investigation into some alleged contradictions in welfare economics.* Econ. Jour., Sept. 1957. Pp. 10.

Murti, V. N. and Sastry, V. K. *Production functions for Indian industry.* Econometrica, Apr. 1957. Pp. 17.

Orcutt, G. H. *A new type of socio-economic system.* Rev. Econ. Stat., May 1957. Pp. 8.

Rossi, P. *Max Weber e la metodologia delle scienze storico-sociali.* Giorn. d. Econ., Jan.-Feb. 1957. Pp. 30.

Schack, H. *Die problematik des Marxismus-Leninismus.* Schmollers Jahrb., 1957, LXXVII (3). Pp. 32.

Schneider, E. *Einkommen und Einkommensverteilung in der makroökonomischen Theorie.* L'industria, Apr.-June 1957. Pp. 13.

Schroeder, R. *Zur Einkommens- und Preiselastizität längerlebiger Konsumgütergruppen.* (With English summary.) Ifo-Stud., 1956, II (2). Pp. 46.

Seton, F. *The "transformation problem."* Rev. Econ. Stud., June 1957. Pp. 12.

Shibata, K. *Fatal errors newly uncovered in Keynesian theory.* Kyoto Univ. Econ. Rev., Apr. 1956. Pp. 30.

Shinohara, M. *The multiplier and the marginal propensity to import.* Am. Econ. Rev., Sept. 1957. Pp. 17.

Smith, V. L. *Engineering data and statistical techniques in the analysis of production and technological change: fuel requirements in the trucking industry.* Econometrica, Apr. 1957. Pp. 21.

Solow, R. M. *Technical change and the aggregate production function.* Rev. Econ. Stat., Aug. 1957. Pp. 9.

Soper, C. S. *Scientific method and measurable utility.* So. Afr. Jour. Econ., June 1957. Pp. 12.

Spengler, J. J. *Malthus the Malthusian vs. Malthus the economist.* So. Econ. Jour., July 1957. Pp. 11.

———. *Product-adding versus product-replacing innovations.* Kyklos, 1957, X (3). Pp. 32.

Spraos, J. *Stability in a closed economy and in the foreign exchange market, and the redistributive effect of price changes.* Rev. Econ. Stud., June 1957. Pp. 16.

STEENBERGEN, TH. J. *Thorstein Veblen (1857-30 juli-1957)*. De Economist, July-Aug. 1957. Pp. 13.

STROTZ, R. H. *The empirical implications of a utility tree*. Econometrica, Apr. 1957. Pp. 22.

TAWNEY, R. H. *Beatriz Webb, 1858-1943*. Rev. de Econ. Pol. Jan.-Apr. 1957. Pp. 32.

THORE, S. A. O. *Hushållens sparande. Inflationsinkomstvinsternas inverkan på sparbenägenheten*. Ekon. Tids., June 1957. Pp. 22.

TIMM, H. *Multiplikator, Geldmenge und Zins*. Jahrb. f. Nationalök. und Stat., June 1957. Pp. 23.

TINBERGEN, J. *The appraisal of road cons'ruction: two calculation schemes*. Rev. Econ. Stat., Aug. 1957. Pp. 9.

TRIÁS-FARGAS, R. *El concepto económico de región: instrumento imprescindible del examen espacial empirico*. Moneda y Crédito, Mar. 1957. Pp. 24.

VAN DER STER, W. *Conflit et correspection en tant que facteurs décisifs dans le monopole bilatéral*. Écon. Appliquée, Jan.-Mar. 1957. Pp. 22.

VICKERS, D. *Metho·' and analysis in David Hume's economic essays*. Economica, Aug. 1957. Pp. 10.

VILLARD, H. H. *The social cost of corporate monopoly profits*. Pol. Sci. Quart., Sept. 1957. Pp. 8.

VINCENS, J. *La notion de ménage et son utilisation économique*. Rev. Écon., May 1957. Pp. 27.

WEINTRAUB, S. *The micro-foundations of aggregate demand and supply*. Econ. Jour., Sept. 1957. Pp. 16.

WORCESTER, D. A., JR. *Why "dominant firms" decline*. Jour. Pol. Econ., Aug. 1957. Pp. 9.

ZACCAGNINI, E. *La teoria economica della pubblicità*. L'industria, Apr.-June 1957. Pp. 12.

ZELLNER, A. *Consumption and the consumption function in the U.S. 1948-1949 recession*. Rev. Econ. Stat., Aug. 1957. Pp. 9.

Savings behaviour: a symposium. Articles by F. Modigliani and A. K. Ando, M. Friedman, T. P. Hill, T. Haavelmo, L. R. Klein and N. Liviatan, J. Tobin and H. Watts, I. Friend, J. D. Sargan, M. R. Fisher. Bull. Oxford Univ. Inst. Stat., May 1957. Pp. 80.

Economic History; Economic Development; National Economies

BAKKER, J. N. F. *Enige grondbeginselen voor de prioriteitsbepaling van investeringen in achtergebleven gebieden*. De Economist, May 1957. Pp. 37.

BAMFORD, P. W. *Entrepreneurship in seventeenth and eighteenth century France: some general conditions and a case study*. Explor. Entr. Hist., Apr. 1957. Pp. 10.

BLUM, J. *The rise of serfdom in Eastern Europe*. Am. Hist. Rev., July 1957. Pp. 30.

BROWN, W. H. *Innovation in the machine tool industry*. Quart. Jour. Econ., Aug. 1957. Pp. 20.

BRUTON, H. J. *The short-run problem of growth in underdeveloped countries*. Kyklos, 1957, X (3). Pp. 21.

BUCKLEY, K. *E. G. Wakefield and the alienation of Crown land in New South Wales to 1847*. Econ. Record, Apr. 1957. Pp. 17.

CAINE, S. *Britain revisited*. Lloyds Bank Rev., July 1957. Pp. 14.

CHECKLAND, S. G. *Two Scottish West Indian liquidations after 1793*. Scot. Jour. Pol. Econ., June 1957. Pp. 17.

COLLADO, E. G. AND BENNETT, J. F. *Private investment and economic development*. For. Affairs, July 1957. Pp. 15.

DAL PANE, L. *Gli studi sulla storia economica Bolognese del medio evo nel secolo XX*. Giorn. d. Econ., Mar.-Apr. 1957. Pp. 13.

Dell'Amore, G. *La raccolta del risparmio in rapporto allo sviluppo economico nazionale.* (With English summary.) Risparmio, July 1957. Pp. 35.

Delvaux, G. *Contribution à l'histoire de la gestion des entreprises pour le 400e anniversaire.* Annales de Sci. Écon. Appliquées, July 1957. Pp. 24.

Deyrup, F. J. *Limits of government activity in underdeveloped countries.* Soc. Research, Summer 1957. Pp. 11.

Ellis, H. S. *"Big push" theories of economic development.* L'industria, Apr.-June 1957. Pp. 10.

Frisch, R. *Generalidades sobre planificação.* (With English summary.) Rev. de Econ. (Portugal), Mar. 1957. Pp. 24.

Gerschenkron, A. *Reflections on the concept of "prerequisites" of modern industrialization.* L'industria, Apr.-June 1957. Pp. 18.

Gill, K. S. *China's rate of economic growth.* Indian Econ. Jour., Apr. 1957. Pp. 15.

Goldstein, S. and Mayer, K. *Patterns of business growth and survival in a medium-sized community.* Jour. Econ. Hist., June 1957. Pp. 14.

Gopal, M. H. *Indian industrial policy: its evolution.* Indian Econ. Jour., Apr. 1957. Pp. 27.

Gordon, W. E. *Imperial policy decisions in the economic history of Jamaica, 1664-1934.* Soc. Econ. Stud., 1957, VI (1). Pp. 28.

Haberler, G. *Critical observations on some current notions in the theory of economic development.* L'industria, Apr.-June 1957. Pp. 11.

Harrison, R. W. *Research in the dynamics of economic development in the Alluvial Valley of the lower Mississippi River.* Jour. Farm Econ., Aug. 1957. Pp. 5.

Hirschman, A. O. *Investment policies and "dualism" in underdeveloped countries.* Am. Econ. Rev., Sept. 1957. Pp. 21.

Holzman, F. D. *The Soviet Ural-Kuznetsk Combine: a study in investment criteria and industrialization policies.* Quart. Jour. Econ., Aug. 1957. Pp. 38.

Horie, Y. *The problem of the modernization of Japan.* Kyoto Univ. Econ. Rev., Apr. 1956. Pp. 12.

Hozumi, F. *Some notes on the Luddites.* Kyoto Univ. Econ. Rev., Oct. 1956. Pp. 29.

Lawson, R. W. *Ghana in economic transition.* So. Afr. Jour. Econ., June 1957. Pp. 12.

Little, I. M. D. *Classical growth.* Oxford Econ. Papers, June 1957. Pp. 26.

Lüthy, H. *Du visa au Mississippi. Deux "cas" de l'époque de law.* Schweiz. Zeitschr. f. Volkswirtschaft und Stat., June 1957. Pp. 14.

Lutz, V. C. *Some characteristics of Italian economic development, 1950-1955.* Banca Nazionale del Lavoro Quart. Rev., Dec. 1956. Pp. 33.

Kiralfy, A. K. R. *Recent legal changes in the USSR.* Soviet Stud., July 1957. Pp. 19.

Matsui, K. *Problems of the economic development in underdeveloped countries.* Kyoto Univ. Econ. Rev., Oct. 1956. Pp. 9.

Oanh, N. X. *Patterns of consumption and economic development.* Econ. Internaz., Feb. 1957. Pp. 17.

Paranjape, H. K. *Planning in Poland—a report.* Indian Econ. Jour., Apr. 1957. Pp. 27.

Parker, W. N. *Coal and steel output movements in Western Europe, 1880-1956.* Explor. Entr. Hist., Apr. 1957. Pp. 17.

Patel, S. J. *Growth in income and investment in India and China, 1952-60.* Indian Econ. Rev., Feb. 1957. Pp. 15.

Piatier, A. *Spese pubbliche e sviluppo economico.* Studi Econ., May-Aug. 1957. Pp. 30.

Prasad, K. *Implications of economic growth in underdeveloped countries.* Sci. and Soc., Summer 1957. Pp. 17.

Ranis, G. *Factor proportions in Japanese economic development.* Am. Econ. Rev., Sept. 1957. Pp. 14.

SARKAR, N. K. *A method of estimating surplus labour in peasant agriculture in over-populated under-developed countries.* Jour. Royal Stat. Soc., 1957, CXX (2). Pp. 6.

SCHATZ, S. P. *Inflation in underdeveloped countries: a theoretical analysis.* Am. Econ. Rev., Sept. 1957. Pp. 23.

SCHMOOKLER, J. *Inventors past and present.* Rev. Econ. Stat., Aug. 1957. Pp. 13.

SILCOCK, T. H. *Some determinants of economic development.* Malayan Econ. Rev., Apr. 1957. Pp. 15.

SMITH, R. S. *Population and economic development in Latin America.* So. Econ. Jour., July 1957. Pp. 9.

SRIVASTAVA, S. S. *Controlled investments in India, 1947-55.* Indian Jour. Econ., Jan. 1957. Pp. 10.

THWEATT, W. O. *A diagrammatic presentation of Adam Smith's growth model.* Soc. Research, Summer 1957. Pp. 4.

TOLLET, C. G. *Finland och världsekonomien efter andra världskriget.* Ekon. Samfundets Tids., 1957, X (3). Pp. 2.

WRONSKI, H. *La répartition des revenus kolkhoziens.* Rev. Écon., May 1957. Pp. 22.

YAMANAKA, T. *Prerequisites for Japanese economy and small-medium industry.* Annals Hitotsubashi Acad., Apr. 1957. Pp. 24.

I.L.O. productivity missions to underdeveloped countries: I, II. Internat. Lab. Rev., July 1957, Aug. 1957. Pp. 29, 28.

La France économique en 1956. 19 articles by various authors. Rev. d'Écon. Pol., July-Oct. 1957. Pp. 398.

Recent productivity trends in Western European manufacturing industry. Internat. Lab. Rev., July 1957. Pp. 11.

Statistical Methods; Econometrics; Social Accounting

ABE, O. *Regression analysis and errors in variables in economic time series.* Kyoto Univ. Econ. Rev., Oct. 1956. Pp. 8.

ANDERSON, T. W. *Maximum likelihood estimates for a multivariate normal distribution when some observations are missing.* Jour. Am. Stat. Assoc., June 1957. Pp. 4.

BURTON, H. *The reliability of national income statistics.* Accounting Research, July 1957. Pp. 16.

CAVES, R. E. *The inter-industry structure of the Canadian economy.* Can. Jour. Econ. Pol. Sci., Aug. 1957. Pp. 18.

GIBSON, W. M. AND JOWETT, G. H. *"Three-group" regression analysis.* Part I. *Simple regression analysis.* Applied Stat., June 1957. Pp. 9.

GRUSON, C. *Le calcul de l'impôt dans le revenu national.* Rev. Sci. Fin., July-Sept. 1957. Pp. 13.

HICKS, J. R. *La reforma de la contabilidad presupuestaria.* Rev. de Econ. Pol., Jan.-Apr. 1957. Pp. 95.

JANNACCONE, P. *Sul calcolo del reddito nazionale.* Giorn. d. Econ., Mar.-Apr. 1957. Pp. 12.

KRELLE, W. *Möglichkeiten und Grenzen der Ökonometrie.* Zeitschr. f. die. ges. Staatswiss., 1957, CXIII (3). Pp. 12.

LIPTON, S. *Some statistical applications of electronic computers.* Applied Stat., June 1957. Pp. 12.

MAILLET, P. *L'économie française vue à travers le tableau économique. Essai d'analyse et de mesure des interdépendances.* Rev. d'Écon. Pol., May-June 1957. Pp. 36.

MILLER, R. E. *The impact of the aluminum industry on the Pacific Northwest: a regional input-output analysis.* Rev. Econ. Stat., May 1957. Pp. 10.

OSHIMA, H. T. *National income statistics of underdeveloped countries.* Jour. Am. Stat. Assoc., June 1957. Pp. 13.

PARETTI, V. AND BLOCH, G. *Industrial production in Western Europe and the United States 1901 to 1955.* Banca Nazionale del Lavoro Quart. Rev., Dec. 1956. Pp. 50.

PENNOCK, J. L. AND JAEGER, C. M. *Estimating the service life of household goods by actuarial methods.* Jour. Am. Stat. Assoc., June 1957. Pp. 11.

POMPILJ, G. *Su la regressione interamente pseudo-lineare.* L'industria, Apr.-June 1957. Pp. 16.

REITER, S. *A note on surrogates for uncertain decision problems.* Econometrica, Apr. 1957. Pp. 7.

RICHARD, F. M. *Comptabilité national et comptabilité des entreprises.* Rev. Sci. Fin., July-Sept. 1957. Pp. 13.

ROSENBLATT, D. *On linear models and the graphs of Minkowski-Leontief matrices.* Econometrica, Apr. 1957. Pp. 14.

SCHAPPER, H. P. AND MAULDON, R. G. *A production function from farms in the whole-milk region of Western Australia.* Econ. Record, Apr. 1957. Pp. 8.

THEIL, H. *A note on certainty equivalence in dynamic planning.* Econometrica, Apr. 1957. Pp. 4.

TINTNER, G. *La théorie probabiliste de Carnap et son application aux problèmes de l'économétrie.* Écon. Appliquee, Jan.-Mar. 1957. Pp. 4.

WESTSTRATE, C. *An estimate of the magnitude of income redistribution in New Zealand.* Econ. Record, Apr. 1957. Pp. 6.

Economic Systems; Planning and Reform; Cooperation

KLATZMANN, J. *L'originalité de l'économie yougoslave.* Rev. Écon., May 1957. Pp. 14.

VILJOEN, S. P. *Transition from a capitalistic to an organizational economy.* So. Afr. Jour. Econ., June 1957. Pp. 10.

Communism and the price system. I. *On the role of the law of value in socialist economy,* by W. Brus. II. *In the pincers of the law of value,* by J. Pajestka. Oxford Econ. Papers, June 1957. Pp. 12, 4.

Business Fluctuations

HAHN, A. *Die Bedeutung psychologischer Faktoren für Konjunkturschwankungen und Konjunkturprognosen.* Schweiz. Zeitschr. f. Volkswirtschaft und Stat., June 1957. Pp. 11.

KORPELAINEN, L. *Trends and cyclical movements in industrial employment in Finland 1885-1952.* Scan. Econ. Hist. Rev., 1957, V (1). Pp. 23.

LUTZ, F. A. *Inflationsgefahr und Konjunkturpolitik.* Schweiz. Zeitschr. f. Volkswirtschaft und Stat., June 1957. Pp. 11.

MALINEN, O. *Sanomalehti-ilmoittelun suhdannekehityksestä maassamme.* (With English summary.) Liiketaloudellinen Aikakauskirja, 1957, II (6). Pp. 2.

SIMPSON, P. B. AND ANDERSON, P. S. *Liabilities of usiness failures as a business indicator.* Rev. Econ. Stat., May 1957. Pp. 7.

SLICHTER, S. H. *Thinking ahead: on the side of inflation.* Harvard Bus. Rev., Sept.-Oct. 1957. Pp. 16.

SMITHIES, A. *The control of inflation.* Rev. Econ. Stat., Aug. 1957. Pp. 12.

WEBER, H.-H. *Anwendungsformen von Gleitklauseln.* Zeitschr. f. die ges. Staatswiss., 1957, CXIII (3). Pp. 9.

Money, Credit and Banking; Monetary Policy; Customer Finance; Mortgage Credit

ARNDT, H. W. *The special account procedure as a technique of central bank control. A study of fifteen years of Australian experience.* Banca Nazionale del Lavoro Quart. Rev., Dec. 1956. Pp. 25.

BARBER, C. L. *Canada's post-war monetary policy, 1945-54.* Can. Jour. Econ. Pol. Sci., Aug. 1957. Pp. 14.

BECKER, G. S. AND BAUMOL, W. J. *La teoría monetaria clásica: el resultado de la discusión* (I). Rev. de Econ. Pol., Jan.-Apr. 1957. Pp. 29.

BONVOISIN, P. *New look in international banking.* Annales de Sci. Écon. Appliquées, July 1957. Pp. 20.

BRECHLING, F. P. R. *A note on bond-holding and the liquidity preference theory of interest.* Rev. Econ. Stud., June 1957. Pp. 8.

CAFFÈ, F. *Istanze salariali e stabilità monetaria.* L'industria, Apr.-June 1957. Pp. 16.

COULBOIS, P. *La politique monétaire en Allemagne depuis 1948.* Rev. Écon., July 1957. Pp. 47.

D'ALBERGO, E. *Remarks on Italy's public debt policy.* Rev. Econ. Conditions in Italy, May 1957. Pp. 12.

DE FIGUEROA, E. *El equilibrio monetario y el equilibrio de la balanza de pagos como objetivos de la política económica.* Rev. de Econ. Pol., Jan.-Apr. 1957. Pp. 30.

DIETERLEN, P. *La politique monétaire française. Cinq ans de stabilité.* Rev. Écon., July 1957. Pp. 36.

DIVISIA, F. *L'interventionnisme monétaire et la monnaie à découvert.* L'industria, Apr.-June 1957. Pp. 18.

FERRARI, A. *Eventi e problemi monetari europei.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., May 1957. Pp. 19.

GURLEY, J. G. AND SHAW, E. E. *The growth of debt and money in the United States, 1800-1950: a suggested interpretation.* Rev. Econ. Stat., Aug. 1957. Pp. 13.

HABERLER, G. *Monetary and real factors affecting economic stability.* Banca Nazionale del Lavoro Quart. Rev., Sept. 1956. Pp. 42.

HIGONNET, R. P. *Bank deposits in the United Kingdom, 1870-1914.* Quart. Jour. Econ., Aug. 1957. Pp. 39.

JAMES, E. *A propos de l'efficacité de l'action des autorités monétaires.* Rev. Écon., July 1957. Pp. 22.

KAREKEN, J. H. *Lenders' preferences, credit rationing, and the effectiveness of monetary policy.* Rev. Econ. Stat., Aug. 1957. Pp. 11.

KHUSRO, A. M. *Liquidity preference in India.* Indian Econ. Rev., Feb. 1957. Pp. 17.

LYDALL, H. F. *The impact of the credit squeeze on small and medium-sized manufacturing firms.* Econ. Jour., Sept. 1957. Pp. 17.

MCKINLEY, G. W. *The Federal Home Loan Bank System and the control of credit.* Jour. Finance, Sept. 1957. Pp. 14.

MEIMBERG, R. *Probleme der Angleichung der Notenbankpolitik verschiedener Länder bei Bildung eines gemeinsamen Marktes.* Zeitschr. f. die ges. Staatswiss., 1957, CXIII (3). Pp. 17.

MENICHELLA, D. *The contribution of the banking system to monetary equilibrium and economic stability: Italian experience.* Banca Nazionale del Lavoro Quart. Rev., Jan.-June 1956. Pp. 47.

MEYNAUD, J. *Les banques face à la politique du crédit.* Rev. Écon., July 1957. Pp. 31.

ROSE, H. B. *Monetary policy and the capital market, 1955-56.* Econ. Jour., Sept. 1957. Pp. 18.

RUEFF, J. *Eléments pour une théorie du taux d'escompte et de la balance des comptes.* Rev. Écon., July 1957. Pp. 31.

SCHLESINGER, J. J. *The role of the monetary environment in cost-inflation.* So. Econ. Jour., July 1957. Pp. 16.

SHERWOOD, P. W. *The Watson-Caine Report on the establishment of a Central Bank in Malaya.* Malayan Econ. Rev., Apr. 1957. Pp. 12.

SPRAOS, J. *An Engel-type curve for cash.* Man. School Econ. Soc. Stud., May 1957. Pp. 7.

STOLPER, W. F. *Mortgage finance and construction in the American economy since the end of the war.* Banca Nazionale del Lavoro Quart. Rev., Jan.-June 1956. Pp. 46.

TABATONI, P. *Le néo-classicisme monétaire aux Etats-Unis depuis 1950.* Rev. Écon., July 1957. Pp. 49.

Interest rates in leading countries. Fed. Res. Bull., Aug. 1957. Pp. 7.

1957 survey of consumer finances: housing and durable goods. Fed. Res. Bull., June 1957. Pp. 18.

1957 survey of consumer finances: the financial position of consumers. Fed. Res. Bull., Aug. 1957. Pp. 24.

Proposed financial institutions act. Fed. Res. Bull., July 1957. Pp. 8.

Winning the battle against inflation. Fed. Res. Bull., Aug. 1957. Pp. 12.

Public Finance; Fiscal Policy

BREAK, G. F. *Income taxes and incentives to work: an empirical study.* Am. Econ. Rev., Sept. 1957. Pp. 21.

COSCIANI, C. *Effets de distorsion de l'impôt sur les sociétés quant aux investissements.* Rev. Sci. Fin., July-Sept. 1957. Pp. 21.

COX-GEORGE, N. A. *Fiscal experiments in Eastern Nigeria.* (With French summary.) Pub. Fin./Fin. Publiques, 1957, XII (2). Pp. 9.

DAR, MRS. U. *Taxing capital gains.* Indian Jour. Econ., Jan. 1957. Pp. 4.

DAVIDSON, S. *Depreciation, income taxes and growth.* Accounting Research, July 1957. Pp. 15.

FOSSATI, E. *For the application of linear programming to public finance.* (With French summary.) Pub. Fin./Fin. Publiques, 1957, XII (2). Pp. 4.

GEHRELS, F. *Government debt as a generator of economic growth.* Rev. Econ. Stat., May 1957. Pp. 10.

GILL, K. S. *Three concepts of deficit spending.* Indian Jour. Econ., Jan. 1957. Pp. 22.

GILLMORE, C. W. *Trust funds and national output.* So. Econ. Jour., July 1957. Pp. 13.

GIORGETTI, A. *Il problema imposizionale nel nuovo equilibrio del mercato comune europeo.* (With English summary.) Risparmio, Apr. 1957. Pp. 18.

HELLER, W. W. *CED's stabilizing budget policy after ten years.* Am. Econ. Rev., Sept. 1957. Pp. 18.

———. *Financing state-local government in an age of expansion.* State Gov., July 1957. Pp. 5+.

HERSCHEL, F. J. AND ITZCOVICH, S. *Fiscal policy in Argentina.* Pub. Fin./Fin. Publiques, 1957, XII (2). Pp. 19.

HOLZMAN, F. D. *Taxes and standard of living in the U.S.S.R.: postwar developments.* Nat. Tax Jour., June 1957. Pp. 10.

JONES, E. G. AND NEVIN, E. *The British national debt: I.* Economica, Aug. 1957. Pp. 20.

LAUFENBURGER, *Finances et monnaie.* L'industria, Apr.-June 1957. Pp. 16.

LAURÉ, M. *Pour une réforme de la fiscalité sur l'énergie en France.* Rev. Sci. Fin., July-Sept. 1957. Pp. 12.

LYNN, A. D., JR. AND OSTER, C. V. *Economic aspects of tax benefits accorded Ohio charitable trusts.* Ohio State Law Jour., 1957, XVIII (2). Pp. 11.

MANDAL, G. C. *Kaldor on Indian tax reform.* Indian Jour. Econ., Jan. 1957. Pp. 4.

MORAG, A. *Some economic aspects of two administrative methods of estimating taxable income.* Nat. Tax Jour., June 1957. Pp. 10.

MOSCARELLA, J. *Aspects fiscaux du développement économique de l'Amérique centrale.* Rev. Sci. Fin., July-Sept. 1957. Pp. 25.

MUSHKIN, S. *Report of the Commission on Intergovernmental Relations.* Rev. Econ. Stat., Aug. 1957. Pp. 8.

MYERS, E. A. AND STOUT, R. S. *The role of the states and local governments in national fiscal policy.* Nat. Tax Jour., June 1957. Pp. 5.

SALANT, W. A. *Taxes, income determination, and the balanced budget theorem.* Rev. Econ. Stat., May 1957. Pp. 10.

SCAILTEUR, C. *In dubio contra fiscum.* Vie Econ. et Soc., May 1957. Pp. 8.

SLICHTER, S. H. *Government spending can reduce taxes.* Harvard Bus. Rev., July-Aug. 1957. Pp. 9.

STEGER, W. A. *Averaging corporation income for tax purposes: a statistical study.* Jour. Finance, Sept. 1957. Pp. 8.

STERN, I. *Government employment trends, 1929 to 1956.* Mo. Lab. Rev., July 1957. Pp. 5.

STOCKFISCH, J. A. *Investment incentive, taxation, and accelerated depreciation.* So. Econ. Jour., July 1957. Pp. 13.

TINBERGEN, J., BACH, G. L., JOHNSON, H. G., TARSHIS, L. *Comments on the economics of Governor Stevenson's program paper: Where is the money coming from?* Rev. Econ. Stat., May 1957. Pp. 9.

VÄSTHAGEN, N. *Tax policy and business firms' investment activities.* Skandinav. Bank. Quart. Rev., July 1957. Pp. 12.

WELCH, R. B. *Intercounty equalization in California*—part 2: *action and reaction.* Nat. Tax Jour., June 1957. Pp. 10.

WHITESIDE, F. W., JR. *Income tax consequences of distributions of stock rights to shareholders.* Yale Law Jour., June 1957. Pp. 22.

WISEMAN, J. *The future of local government finance.* Lloyds Bank Rev., July 1957. Pp. 15.

Financing highway construction. 3 articles by J. F. Due, D. Netzer, and J. W. Martin, C. R. Lockyer, E. C. Holshouser. Nat. Tax Jour., June 1957. Pp. 41.

How the tax bite on industry varies from state to state. Bus. Week, July 13, 1957. Pp. 3.

International Economics

ALDINGTON, G. W. *The trend in international payments: Britain and the United States.* Annals Am. Acad. Pol. Soc. Sci., July 1957. Pp. 9.

ASIMAKOPULOS, A. *A note on productivity changes and the terms of trade.* Oxford Econ. Papers, June 1957. Pp. 9.

BAUMOL, W. J. *Speculation, profitability, and stability.* Rev. Econ. Stat., Aug. 1957. Pp. 9.

BREMS, H. *Employment and money wages under balanced foreign trade.* Econometrica, Apr. 1957. Pp. 11.

BYÉ, M. *L'autofinancement de la grande unité interterritoriale et les dimensions temporelles de son plan.* Rev. d'Écon. Pol., May-June 1957. Pp. 44.

CAMPILLI, P. *L'Italia di fronte al mercato comune.* (With English summary.) Mondo Aperto, Apr. 1957. Pp. 6.

CHEE, S. N. *The International Tin Agreement, 1953.* Malayan Econ. Rev., Apr. 1957. Pp. 19.

CORDEN, W. M. *The calculation of the cost of protection.* Econ. Record, Apr. 1957. Pp. 23.

———. *Tariffs, subsidies and the terms of trade.* Economica, Aug. 1957. Pp. 8.

DELIVANIS, D.-J. *L'effet de la concurrence imparfaite dans les relations économiques internationales sur le plan monétaire.* Rev. d'Écon. Pol., May-June 1957. Pp. 29.

DEMARIA, G. *Sistema dei prezzi e concorrenza nel mercato comune.* Giorn. d. Econ., May-June 1957. Pp. 107.

GROSSMANN, M. *Der "Gemeinsame Markt" und die Versicherung.* Aussenwirtschaft, June 1957. Pp. 9.

JONES, D. *The European Monetary Agreement, the European Payments Union, and convertibility.* Jour. Finance, Sept. 1957. Pp. 15.

KELLER, T., BOSSHARDT, A., BINSWANGER, H. C. *Betrachtungen zur Aussenwirtschaftspolitik.* Aussenwirtschaft, June 1957. Pp. 24.

KNAPP, J. *Capital exports and growth.* Econ. Jour., Sept. 1957. Pp. 13.

LEUENBERGER, H. R. *Der zollfreie Veredlungsverkehr der Schweiz.* Aussenwirtschaft, June 1957. Pp. 13.

MAHR, A. *Konjunktur und Aussenhandel.* L'industria, Apr.-June 1957. Pp. 18.

MAIZELS, A. *Unit value and volume index numbers of inter-area trade.* Jour. Royal Stat. Soc., 1957, CXX (2). Pp. 5.

MARASCO, E. *Bilateralismo e multilateralità.* (With English summary.) Mondo Aperto, Apr. 1957. Pp. 11.

MARJOLIN, R. *Prospects for the European common market.* For. Affairs, Oct. 1957. Pp. 12.

MEADE, J. E. *The balance-of-payments problems of a European free-trade area.* Econ. Jour., Sept. 1957. Pp. 18.

MEADE, J. E. AND RUSSELL, E. A. *Wage rates, the cost of living and the balance of payments.* Econ. Record, Apr. 1957. Pp. 6.

MEHTA, F. A. *Changes in the terms of trade as an income factor in world trade, 1929-1938.* Indian Econ. Rev., Feb. 1957. Pp. 23.

MORISHIMA, M. *Notes on the theory of stability of multiple exchange.* Rev. Econ. Stud., June 1957. Pp. 6.

MUNDELL, R. A. *Transport costs in international trade theory.* Can. Jour. Econ. Pol. Sci., Aug. 1957. Pp. 18.

OLIN, C-E. *Västeuropeisk gemensam marknad.* Ekon. Samfundets Tids., 1957, X (2). Pp. 6.

OPIE, R. *Anglo-American economic relations in war-time.* Oxford Econ. Papers, June 1957. Pp. 37.

PALOMBA, G. *Contributo allo studio della teoria dei valori internazionali.* L'industria, Apr.-June 1957. Pp. 15.

PAPI, G. U. *Problemi economici della C.E.C.A.* (With English summary.) Risparmio, May 1957. Pp. 14.

SARACENO, P. *Rapporti tra agricoltura e industria nel processo di formazione del mercato commune europeo.* (With English summary.) Risparmio, June 1957. Pp. 28.

SAUL, S. B. *The economic significance of "constructive imperialism."* Jour. Econ. Hist., June 1957. Pp. 20.

SAUSE, O. M. *Algunos aspectos de los programas de cooperación económica hispano-norteamericanos* (I). Rev. de Econ. Pol., Jan.-Apr. 1957. Pp. 12.

SIGLIENTI, S. *Verso l'unione monetaria europea.* (With English summary.) Mondo Aperto, Apr. 1957. Pp. 7.

SÖDERHJELM, J. O. *Det europeiska frihandelsområdet och Finland.* Ekon. Samfundets Tids., 1957, X (2). Pp. 10.

STERN, E. AND THOMAS, M. L. *An Asian-American development program.* Western Pol. Quart., June 1957. Pp. 11.

TINBERGEN, J. *Customs unions: influence of their size on their effect.* Zeitschr. f. die ges. Staatswiss., 1957, CXIII (3). Pp. 11.

TRIFFIN, R. *Integración y convertibilidad monetaria. Perspectivas actuales y programa de acción.* Moneda y Crédito, Mar. 1957. Pp. 20.

VAN TRAA, P. C. *Enkele aspecten van de West-Europese integratie.* De Economist, June 1957. Pp. 22.

VON BÖVENTER, E. *Die kurzfristigen Bestimmungsgründe des Warenhandels der Vereinigten Staaten: Die Einfuhren.* Zeitschr. f. die ges. Staatswiss., 1957, CXIII (3). Pp. 32.

WEMELSFELDER, J. *A new chapter in the theory and practice of international trade. Disturbances of normal competitive conditions.* Econ. Internaz., Feb. 1957. Pp. 34.

WINTER, W. L. *The Hansa and European community of coal and steel.* Am. Jour. Econ. Soc., July 1957. Pp. 6.

ZARKA, C. *L'expérience du marché commun franco-tunisien des céréales.* Rev. Écon., May 1957. Pp. 15.

International technical assistance in vocational training. Internat. Lab. Rev., June 1957. Pp. 16.

Business Finance; Investment and Security Markets; Insurance

CANTARELLI, D. *Il "factoring" nell'odierno finanziamento d'impresa.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., May 1957. Pp. 9.

CERF, A. R. *Dividend declarations and inventory valuations.* Accounting Research, July 1957. Pp. 12.

COUGHLAN, J. W. *The guises of replacement cost.* Accounting Rev., July 1957. Pp. 14.

DURAND, D. *Growth stocks and the Petersburg paradox.* Jour. Finance, Sept. 1957. Pp. 16.

FELDMAN, M. AND ROTHSCHILD, V. H. *Executive compensation and federal securities legislation.* Mich. Law Rev., June 1957. Pp. 36.

JERVIS, F. R. *Private company finance in the post-war period.* Man. School Econ. Soc. Stud., May 1957. Pp. 22.

JOHNSTON, J. AND MURPHY, G. W. *The growth of life assurance in U.K. since 1880.* Man. School Econ. Soc. Stud., May 1957. Pp. 76.

KANZIG, E. *Fursprecher in Bern: die Sanierung der Untermehmung und ihre Auswirkungen auf die steuerliche Gewinnermittlung.* Wirtschaft und Recht, 1957, IX (2). Pp. 19.

RENSHAW, E. *A note on the arithmetic of capital budgeting decisions.* Jour. Bus. Univ. Chicago, July 1957. Pp. 9.

WALLACE, E. L. *Some comments on the statement of planning costs.* Accounting Rev., July 1957. Pp. 19.

Problem of small business financing. Fed. Res. Bull., July 1957. Pp. 2.

Survey of common trust funds, 1956. Fed. Res. Bull., June 1957. Pp. 6.

Business financing in early 1957. Fed. Res. Bull., June 1957. Pp. 7.

Business Organization; Managerial Economics; Marketing; Accounting

ANSOFF, H. I. *Strategies for diversification.* Harvard Bus. Rev., Sept.-Oct. 1957. Pp. 12.

BAILEY, S. B. *Automation and productivity, competition and incentives.* Westminster Bank Rev., Aug. 1957. Pp. 4.

BAKKENIST, S. C. AND BEUTICK, D. E. *An investigation into the costs of distribution in the grocery retail trade in the Netherlands.* Prod. Meas. Rev., July 1957. Pp. 47.

BAUMOL, W. J. AND SEVIN, C. H. *Marketing costs and mathematical programing.* Harvard Bus. Rev., Sept.-Oct. 1957. Pp. 9.

BOX, G. E. P. *Evolutionary operation: a method for increasing industrial productivity.* Applied Stat., June 1957. Pp. 21.

BRAMBILLA, F. *La ricerca operativa come scienza delle decisioni.* Giorn. d. Econ., Jan.-Feb. 1957. Pp. 14.

CANTO MARTINEZ, P. *Las áreas de gravitación commercial: problemas metodológicos.* De Economia, Apr. 1957. Pp. 21.

Cerf, A. R. *Diverse accounting procedures, price-level changes, and financial statement ratios.* Jour. Bus. Univ. Chicago, July 1957. Pp. 13.

Coales, J. F. *Financial provision for research and development in industry.* Jour. Indus. Econ., July 1957. Pp. 4.

Fabrizi, C. *Il controllo dello efficienza della distribuzione e della vendita.* I, II. Studi Econ., Feb.-Mar., May-Aug. 1957. Pp. 26, 10.

Goldberg, L. *Jeremy Bentham, critic of accounting method.* Accounting Research, July 1957. Pp. 28.

Gregory, G. R. *A re-orientation of forest marketing research.* Jour. Forestry, June 1957. Pp. 5.

Herrman, C. C. and Stewart, J. B. *The experimental game.* Jour. Marketing, July 1957. Pp. 9.

Higgins, B. *Entrepreneurship in Libya.* Middle East Jour., Summer 1957. Pp. 5.

Horsnell, G. *Economical acceptance sampling schemes.* (With discussion.) Jour. Royal Stat. Soc., 1957, CXX (2). Pp. 27.

Iino, T. *Accounting principles underlying net worth increasing theory.* Annals Hitotsubashi Acad., Apr. 1957. Pp. 8.

Salveson, M. E. *High-speed operations research.* Harvard Bus. Rev., July-Aug. 1957. Pp. 11.

Seed, A. H. *A flexible cost basis for pricing.* N.A.A. Bull., Sept. 1957. Sec. 1. Pp. 8.

Sprouse, R. T. *The significance of the concept of the corporation in accounting analyses.* Accounting Rev., July 1957. Pp. 10.

Tarver, J. D. *Suburbanization of retail trade in the standard metropolitan areas of the United States, 1948-54.* Am. Soc. Rev., Aug. 1957. Pp. 7.

Urwick, L. F. *The span of control.* Scot. Jour. Pol. Econ., June 1957. Pp. 13.

van Waasdijk, T. *A functional analysis of retail buyers' association in the Union.* So. Afr. Jour. Econ., June 1957. Pp. 9.

Automación: una nueva palabra para el progreso industrial y para la productividad. De Economia, Apr. 1957. Pp. 52.

Industrial Organization; Government and Business; Industry Studies

Abrams, E. R. *The taxpayer subsidizes government power projects.* Gov. Util. Fortnightly, July 4, 1957. Pp. 7.

Bellamy, J. M. *Flour pricing and the miller's margin.* Jour. Indus. Econ., July 1957. Pp. 18.

Bloxam, G. A. *Letters patent for inventions: their use and misuse.* Jour. Indus. Econ., July 1957. Pp. 23.

Campolongo, A. *I risultati del mercato comune carbo-siderurgico.* Studi Econ., Feb.-Mar. 1957. Pp. 11.

Carter, C. C. *State regulation of milk in the Southeast.* So. Econ. Jour., July 1957. Pp. 12.

Cockcroft, J. *Il programma britannico per l'energia elettrica nucleare. Dati tecnici.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., May 1957. Pp. 7.

Davis, L. E. *Sources of industrial finance: the American textile industry, a case study.* Explor. Entr. Hist., Apr. 1957. Pp. 15.

Deane, P. *The output of the British woolen industry in the eighteenth century.* Jour. Econ. Hist., June 1957. Pp. 17.

Frumento, A. *L'odierna struttura e il prossimo evolversi della siderurgia italiana.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., May 1957. Pp. 20.

Hart, P. E. *On measuring business concentration.* Bull. Oxford Univ. Inst. Stat., Aug. 1957. Pp. 24.

HEADY, E. O. *An econometric investigation of the technology of agricultural production functions.* Econometrica, Apr. 1957. Pp. 20.

HOUSSIAUX, J. *Quasi-intégration, croissance des firmes et structures industrielles.* Rev. Écon., May 1957. Pp. 27.

JUNCKERSTORFF, H. K. *Die Stellung des Staates zu dem Phänomen des Wettbewerbs.* Zeitschr. f. die ges. Staatswiss., 1957, CXIII (3). Pp. 9.

———. *Fair Trade- und Antitrust-Politik in den USA und in Europa.* Schmollers Jahrb., 1957, LXXVII (4). Pp. 24.

LAIGHT, J. C. *Railway expansion during the post-war period.* So. Afr. Jour. Econ., June 1957. Pp. 9.

MASOIN, M. *La formation des prix du charbon.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., Apr. 1957. Pp. 25.

MAUD, J. *Il programma britannico per l'energia elettrica nucleare. Dati economici.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., May 1957. Pp. 6.

MORONI, E. *Dotazione di ferrovie e servizio ferroviario.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., Apr. 1957. Pp. 14.

SAWA, S. *Freight classification index of Japan National Railway.* Kyoto Univ. Econ. Rev., Apr. 1956. Pp. 10.

THOMPSON, A. E. *Organisation in two nationalised industries.* Scot. Jour. Pol. Econ., June 1957. Pp. 20.

WEIBEL, E. A. *Problems of federalism in the air age*—part I. Jour. Air Law and Com., Spring 1957. Pp. 24.

Le maggiori imprese italiane. (A directory of the largest Italian corporations.) Riv. Internaz. di Sci. Econ. e Com., Suppl. no. 1, 1957. Pp. 55.

Productivity studies in Belgian iron foundries. Prod. Meas. Rev., May 1957. Pp. 3.

Productivity comparisons in the Austrian cotton spinning industry. Prod. Meas. Rev., May 1957. Pp. 3.

Land Economics; Agricultural Economics; Economic Geography; Housing

ÅKERMAN, G. *Bostadsefterfrågan och dess priskänslighet.* Ekon. Tids., June 1957. Pp. 28.

———. *The income elasticity of demand for housing.* Scan. Econ. Hist. Rev., 1957, V (1). Pp. 25.

BAER, G. *Land tenure in the Hashemite Kingdom of Jordan.* Land Econ., Aug. 1957. Pp. 11.

BJÖRKQVIST, H. *Markens värde på lång sikt.* Ekon. Samfundets Tids., 1957, X (3). Pp. 21.

BOELMANS KRANENBURG, H. A. *Visserij en visserijhavens.* De Economist, July-Aug. 1957. Pp. 26.

BRENNAN, T. *Gorbals: a study in redevelopment.* Scot. Jour. Pol. Econ., June 1957. Pp. 13.

BYLUND, H. B. AND BAKER, R. L. *Consumer survey versus store data for determining egg consumption.* Jour. Farm Econ., Aug. 1957. Pp. 8.

CLAWSON, M. *Economic size of forestry operations.* Jour. Forestry, July 1957. Pp. 6.

DEHAVEN, J. C. AND HIRSHLEIFER, J. *Feather River water for Southern California.* Land Econ., Aug. 1957. Pp. 12.

GUILMOT, J. *Le problème des stocks de houille excédentaires.* Annales de Sci. Écon. Appliquées, July 1957. Pp. 32.

HARTOG, F. *Het wereldmarktprijspeil van grondstoffen.* De Economist, May 1957. Pp. 14.

HAYAKAWA, M. *On the distribution of the cultivated land in Japan before and after the land reform in 1946.* L'industria, Apr.-June 1957. Pp. 22.

HEADY, E. O. AND SCHNITTKER, J. A. *Application of input-output models to agriculture.* Jour. Farm Econ., Aug. 1957. Pp. 14.

HUTTON, R. F. AND MCALEXANDER, R. H. *A simplified feed-mix model.* Jour. Farm Econ., Aug. 1957. Pp. 17.

Johnson, L. L. *Price instability, hedging, and trade volume in the coffee futures market.* Jour. Pol. Econ., Aug. 1957. Pp. 16.

Joppich, W. G. *Some economic aspects of the application of artificial fertilizers in Indian agriculture.* Indian Econ. Rev., Feb. 1957. Pp. 11.

Ladejinsky, W. *Carrot and stick in rural China.* For. Affairs, Oct. 1957. Pp. 14.

Leeman, W. A. *Crude oil prices in the United States at the Gulf Coast.* Jour. Indus. Econ., July 1957. Pp. 12.

Margolis, J. *Secondary benefits, external economics, and the justification of public investment.* Rev. Econ. Stat., Aug. 1957. Pp. 8.

———. *Welfare criteria, pricing and decentralization of a public service.* Quart. Jour. Econ., Aug. 1957. Pp. 16.

Newman, D. K. *Building in metropolitan areas, 1954-56.* Mo. Lab. Rev., June 1957. Pp. 8.

Oluwasanmi, H. A. *Land tenure and agricultural improvement in tropical Africa.* Jour. Farm Econ., Aug. 1957. Pp. 8.

Parsons, K. H. *Land reform in the postwar era.* Land Econ., Aug. 1957. Pp. 15.

Peffer, E. L. *Less beef in the plate?* Inter-Am. Econ. Affairs, Summer 1957. Pp. 33.

Phillips, T. L. *Butter and margarine.* Quart. Rev. Agric. Econ., Apr. 1957. Pp. 6.

Pratt, S. *Metropolitan community development and change in sub-center economic functions.* Am. Soc. Rev., Aug. 1957. Pp. 7.

Schiffrin, H. *Sun Yat-sen's early land policy. The origin and meaning of "equalization of land rights."* Jour. Asian Stud., Aug. 1957. Pp. 16.

Shastri, C. P. *Labor utilization in Indian farming.* Jour. Farm Econ., Aug. 1957. Pp. 11.

Sieber, H. *Die Bodenspekulation und ihre Bekämpfungsmöglichkeiten.* Wirtschaft und Recht, 1957, IX (2). Pp. 41.

Spencer, D. L. and Katkoff, V. *China's land transformation and the USSR model.* Land Econ., Aug. 1957. Pp. 16.

Tang, A. M. *Industrial-urban development and agricultural adjustments in the Southern Piedmont, 1940-50.* Jour. Farm Econ., Aug. 1957. Pp. 19.

Tolley, G. S. *Labor market efficiency for agricultural processing.* Jour. Farm Econ., Aug. 1957. Pp. 19.

Weber, A. *Landwirtschaft und Volkswirtschaft.* Schmollers Jahrb., 1957, LXXVII (3). Pp. 14.

Wendt, P. F. *Theory of urban land values.* Land Econ., Aug. 1957. Pp. 13.

The balance sheet of agriculture, 1957. Fed. Res. Bull., Aug. 1957. Pp. 9.

Labor Economics

Baldamus, W. *The relationship between wage and effort.* Jour. Indus. Econ., July 1957. Pp. 10.

Behrend, H. *The effort bargain.* Indus. and Lab. Rel. Rev., July 1957. Pp. 13.

Biays, M. *Sui rapporti tra il salario reale dei lavoratori e la durata e la produttività del lavoro.* I, II. Studi Econ., Feb.-Mar., May-Aug. 1957. Pp. 18, 29.

Blau, P. M. *Occupational bias and mobility.* Am. Soc. Rev., Aug. 1957. Pp. 8.

Burtle, J. *Automation, the guaranteed wage and hours of work.* Internat. Lab. Rev., June 1957. Pp. 19.

Carr, C. E. and Dufty, N. F. *Recruitment in an Australian labor market.* Indus. Lab. Rel. Rev., July 1957. Pp. 9.

Chacón, G. B. *Grandeza, crisis y renacimiento del laboralismo alemán.* Rev. Facultad de Derecho de la Univ. de Madrid, 1957, I (1). Pp. 40.

Chavrid, V. D. *Employment and residence in major metropolitan areas.* Mo. Lab. Rev., Aug. 1957. Pp. 6.

DIENA, L. *Sugli aspetti sociali della disoccupazione.* (With English summary.) Riv. Internaz. di Sci. Econ. e Com., Apr. 1957. Pp. 16.

FINE, S. A. *A reexamination of "transferability of skills."* I, II. Mo. Lab. Rev., July 1957, Aug. 1957. Pp. 8, 11.

GLIKSMAN, J. G. *Soviet labor and the question of productivity.* Mo. Lab. Rev., June 1957. Pp. 5.

JENSEN, V. H. *Dispute settlement in the New York longshore industry.* Indus. Lab. Rel. Rev., July 1957. Pp. 21.

KEDDIE, N. R. *Labor problems of Pakistan.* Jour. Asian Stud., Aug. 1957. Pp. 16.

KUMAR, D. *The transfer of surplus labour from the rural sector.* Indian Econ. Jour., Apr. 1957. Pp. 16.

LORWIN, L. L., BALDWIN, G. B., FLANDERS, A., DAVISON, R. B. AND OTHERS. *Current issues in international labor relations.* (17 articles: 4 on international activities, 4 on new problems in labor relations, 4 on wage policies and wage movements, 5 on labor problems in some underdeveloped countries.) Annals Am. Acad. Pol. Soc. Sci., Mar. 1957. Pp. 181.

MARCHAL, J. AND LECAILLON, J. *Les disparités de salaires entre branches et le comportement des salariés.* Rev. Écon., May 1957. Pp. 18.

McCAFFREE, K. M. *Bargaining in the metal trades in the Northwest.* Mo. Lab. Rev., July 1957. Pp. 6.

———. *Collective bargaining in atomic-energy construction.* Jour. Pol. Econ., Aug. 1957. Pp. 16.

MELMAN, S., CALDERARO, A., SURIDIS, J. *Selective studies in alternative man-hour costs.* Jour. Indus. Econ., July 1957. Pp. 14.

PERLOFF, H. S. *Interrelations of state income and industrial structure.* Rev. Econ. Stat., May 1957. Pp. 10.

RAMESH, MRS. M. S. *Harvey Patti—a model labour colony in South India.* Indian Jour. Econ., Jan. 1957. Pp. 4.

ROBERTS, B. C. *National wage policy in the Netherlands.* Economica, Aug. 1957. Pp. 14.

SAKS, J. I. *Labor implications of peaceful uses of atomic energy.* Mo. Lab. Rev., Aug. 1957. Pp. 11.

SKRINDO, T. *Manpower planning in Norway.* Internat. Lab. Rev., Aug. 1957. Pp. 15.

WALKER, K. F. *Arbitration in a new key.* Econ. Record, Apr. 1957. Pp. 12.

ZAWODNY, J. K. *Grievance procedures in Soviet factories.* Indus. Lab. Rel. Rev., July 1957. Pp. 22.

Arbitration of discharges and the reinstated worker. Two articles by A. M. Ross and J. F. HOLLY. Mo. Lab. Rev., June 1957. Pp. 12.

Obstacles to labour mobility and social problems of resettlement: a survey by the European Coal and Steel Community. Internat. Lab. Rev., July 1957. Pp. 12.

Los salarios durante los últimos veinte años. Moneda y Crédito, Mar. 1957. Pp. 12.

Population; Welfare Programs; Standards of Living

BASTOS DE AVILA, F., S.J. *The future of immigration to South America.* Internat. Lab. Rev., July 1957. Pp. 17.

MORTARA, G. *Alcuni effetti economici della diminuzione della mortalità.* L'industria, Apr.-June 1957. Pp. 7.

———. *Alcuni riflessi economici della diminuzione della mortalità in Italia.* Giorn. d. Econ., Mar.-Apr. 1957. Pp. 14.

QUENSEL, C.-E. *Tendencies in Swedish population development.* Skandinav. Bank. Quart. Rev., July 1957. Pp. 7.

ROY, J. *Population control in the rural sector.* Indian Jour. Econ., Jan. 1957. Pp. 8.

SEIN, M. *The development of social security in Burma, 1954-57.* Internat. Lab. Rev., July 1957. Pp. 14.

SZULC, S. *Demographic problems of Poland.* Internat. Soc. Sci. Bull., 1957, IX (2). Pp. 9.

VAN DER VEN, J. J. M. *Rechtswege zur sozialen Sicherheit.* Zeitschr. f. die ges. Staatswiss., 1957, CXIII (3). Pp. 16.

Related Disciplines

GALES, K. *Discriminant functions of socio-economic class.* Applied Stat., June 1957. Pp. 10.

HANSEN, B. *The Swedish National Institute of Economic Research.* Skandinav. Bank. Quart. Rev., July 1957. Pp. 5.

NOTES

Members who wish to make suggestions for officers of the American Economic Association for 1958-59 are invited to place names with James Washington Bell, secretary of the Association, for transmission to the Nominating Committee when appointed by the incoming President.

Announcements

The next closing date for receipt of proposals in the Social Science Research Program of the National Science Foundation is February 1, 1958. Proposals received by that date will be evaluated in the spring and grants will be approved in time for work to begin in the summer or fall of 1958. Inquiries about the program should be addressed to National Science Foundation, Washington 25, D.C.

The Advancement and Placement Institute has announced the publication of their first annual *World-Wide Graduate Award Directory*. This guide is devoted entirely to advanced graduate opportunities available to educators and scholars in the United States and provides a central reference source of graduate awards. Copies of the publication will be in college and public libraries or may be ordered from the Institute, Box 99E, Greenpoint Station, Brooklyn 22, N.Y., at $2.00 a copy.

The problems of furthering research in Marxism and Leninism on an international basis were the subject of a recent conference of scholars from European countries and the United States. The meeting, which was held in Amsterdam from August 1 to August 3, 1957, continued discussions that had begun in January of this year in Berlin. The conclusion reached in these discussions was that there is a need for intensifying objective scientific research activities in the field of Marxism and Leninism.

Deaths

Harry P. Bell, professor of economics at Dartmouth College, died March 31, 1957.

Sir Arthur Bowley died January 1957.

Eph A. Karelsen, of New York City, died May 1956.

William C. Kessler, head of the economics department of Colgate University, died August 30, 1957.

C. A. Kulp, dean of the Wharton School, University of Pennsylvania, died August 20, 1957.

Hazel Kyrk, professor emeritus of the University of Chicago, died August 8, 1957.

Maurice E. Moore, of Chicago, Illinois, died April 1, 1956.

Raymond B. Pinchbeck, of the University of Richmond, died February 4, 1957.

Arthur Spiethoff, of Tübingen, Germany, died April 4, 1957.

Norman Stocker, of Detroit, Michigan, died January 27, 1957.

Irving Tenner, of Chicago, Illinois, died December 25, 1956.

Adolph Ullman, of Cambridge, Massachusetts, died January 1, 1957.

Appointments and Reservations

Doris G. Adams has been appointed assistant professor of economics at the Pennsylvania State University.

Walter Adams has been reassigned to the Institute of Research on Overseas Programs, Michigan State University, for the current academic year.

Warren G. Adams has returned from teaching in Iraq to serve as assistant professor of economics at Swarthmore College.

Henry H. Albers, formerly of Iowa State College, has been appointed associate professor of management at the State University of Iowa.

Arthur J. Altmeyer, formerly U.S. Commissioner of Social Security, has been appointed lecturer in economics and social work at the University of Wisconsin for the current semester.

Carl T. Arlt is on leave from Oberlin College to spend the current year with the Division of Research and Statistics, Federal Reserve Board, in Washington.

J. L. Athearn, formerly of Ohio State University, has been appointed associate professor of insurance at the University of Florida.

Sanford L. Bacon, Jr. has been promoted to assistant professor of accounting in the Wharton School, University of Pennsylvania.

Nicholas Balabkins has been appointed assistant professor of economics at Washington and Jefferson College.

Robert E. Baldwin has been appointed associate professor in the department of economics, University of California, Los Angeles.

Marto Ballesteros has been appointed instructor in economics at the University of Chicago.

Warren E. Banks has been appointed instructor in the College of Business Administration, University of Arkansas.

Arnold L. Barrett, formerly of King College, has been appointed associate professor of economics in the School of Commerce and Business Administration, University of Alabama.

John F. Barron has been appointed assistant professor of economics at the University of California, Los Angeles.

Carlisle W. Baskin has been promoted to professor of economics, and appointed chairman of the department of economics, at Randolph-Macon College.

William R. Beaton, formerly of Ohio State University, has been appointed assistant professor of economics at the University of Georgia.

Mary Beeler, of Louisiana State University, has accepted a position with Dow Chemical Corporation, Baton Rouge, Louisiana.

J. F. Bell has been appointed chairman of the department of economics at the University of Illinois, succeeding H. K. Allen, who has returned to teaching and research.

Robert W. Bell has been appointed assistant professor of marketing in the College of Business Administration, University of Arkansas.

Arthur Benjamin, of New York University, has been appointed instructor in economics at Lehigh University.

Bernard Berelson has been appointed professor of behavioral sciences in the School of Business and in the Division of Social Sciences, University of Chicago.

Rexer Berndt has resigned from Kalamazoo College to accept a position as associate professor of economics at Arizona State College, Flagstaff.

Edwin Bishop has been appointed instructor in economics at Georgetown University.

James H. Blackman is on leave for the academic year from the University of South Carolina, to direct a study on the Soviet economy at the University of North Carolina under the auspices of the U.S. Air Force.

William T. Blaine, Jr. has been appointed instructor in insurance at the Wharton School, University of Pennsylvania.

Ronald Bodkin has been appointed instructor in economics at the Wharton School, University of Pennsylvania.

Joseph M. Bonin has been appointed instructor in economics at Louisiana State University.

Philip J. Bourque, formerly of Lehigh University, has accepted an appointment as associate professor in the College of Business Administration, University of Washington.

Raymond T. Bowman, formerly of the University of Pennsylvania, has been appointed professorial lecturer in the department of economics, Georgetown University.

Joseph F. Bradley has been promoted to professor of finance at the Pennsylvania State University.

J. Herman Brasseaux has been appointed instructor in accounting at Louisiana State University.

William L. Breit has been appointed instructor in economics at Michigan State University.

Dale G. Brickner, formerly of Cornell University, has been appointed lecturer in economics at Indiana University.

Andrew Brimmer has been appointed lecturer at The City College, New York City.

Edward L. Brink has been promoted to associate professor of marketing at the Wharton School, University of Pennsylvania.

Anthony J. Bryski, on leave from the Pennsylvania Department of Labor and Industry, is assistant professor of economics at Lehigh University.

Louis F. Buckley has been transferred to the Boston Regional Office of the U.S. Department of Labor, where he is serving as deputy regional director for the New England states.

Harvey C. Bunke has been promoted to associate professor in the College of Commerce, State University of Iowa.

Arthur E. Burns has resigned as dean of the School of Government, and has been appointed dean of the Graduate Council, George Washington University.

D. R. Burrus, formerly of the General Electric Company, is manager of marketing research at Texas Instruments, Dallas, Texas.

J. D. Butterworth has been appointed interim head of the department of marketing of the College of Business Administration, University of Florida.

Gilbert R. Bythewood has been appointed assistant professor at the University of Houston.

James E. Caldwell has been appointed instructor in business administration at Louisiana State University.

Rondo E. Cameron has been promoted to associate professor of economics and history at the University of Wisconsin.

Vincent Cangelosi has been promoted to assistant professor of general business in the College of Business Administration, University of Arkansas.

Philan D. Capen has been appointed instructor, geography and industry department, Wharton School, University of Pennsylvania.

T. G. Carpenter has been appointed instructor in economics at the University of Florida.

Troy J. Cauley is on leave from Indiana University this year to accept a visiting professorship of economics at the University of Texas.

K. C. Chacko, economist for the Consulate General of India in New York, is also teaching at The City College.

Lester Chandler has been appointed lecturer in finance at the Wharton School, University of Pennsylvania.

Pik Chau has been appointed assistant professor of economics and business administration at the University of Chattanooga.

Walter A. Chudson, of the United Nations Bureau of Economic Affairs, is on a temporary mission as economic adviser to the U.N. Advisory Council for the Trust Territory of Somaliland under Italian Administration.

Eugene Clark, formerly of Ohio Wesleyan University, has been appointed dean of the School of Economics and Business at the State College of Washington.

Jere Clark has been promoted to associate professor of economics at the University of Chattanooga.

Paul G. Clark has been granted a two-year leave of absence from Williams College to accept a temporary position with the economics division of the RAND Corporation, Santa Monica, California.

Sherrill Cleland has been named chairman of the department of economics and business administration and has been promoted to associate professor at Kalamazoo College.

Edwin K. Clickner has been appointed assistant professor of economics at Presbyterian College, Clinton, South Carolina.

R. S. Cline has been appointed assistant dean of the College of Business Administration, University of Florida.

Robert W. Clower, of the State College of Washington, has been appointed associate professor of economics at Northwestern University.

Harry E. Coggshall has been appointed instructor in finance at the Wharton School, University of Pennsylvania.

Jerome B. Cohen has been named assistant dean in charge of graduate studies at The City College, New York City.

John R. Coleman is assistant head of the department of economics at Carnegie Institute of Technology.

Robert Collier has been promoted to associate professor of economics at Occidental College.

Carolyn C. Comings has been appointed research instructor in the Industrial Research Unit, Wharton School, University of Pennsylvania.

Mary Conlon has been appointed lecturer at The City College, New York City.

John Cornwall has been appointed instructor in economics at Tufts University.

Kenneth D. Courtney has been appointed assistant professor of marketing at Los Angeles State College.

Dudley J. Cowden, of the University of North Carolina, has received a Kenan leave of absence for the spring semester to lecture at the University of London.

John F. Cox II has been appointed instructor in accounting at the Wharton School, University of Pennsylvania.

Jean Crockett has been promoted to assistant professor of finance at the Wharton School, University of Pennsylvania.

Howard A. Cutler has been appointed coordinator of the general education program at the Pennsylvania State University.

Richard M. Cyert is assistant head of the department of industrial management, Carnegie Institute of Technology.

Robert L. Darcy has been appointed assistant professor of economics at Oregon State College.

John L. Davidson has been appointed instructor in business administration at Louisiana State University.

Kingsley Davis, Director of the International Urban Research Office, University of California, has been elected President of the American Sociological Society for 1959.

Carl Dennler, Jr., formerly at the University of Maine, has been appointed assistant professor of accounting at West Virginia University.

Thomas Dernberg has been appointed assistant professor of economics at Purdue University.

Frank T. de Vyver, recently returned from a Fulbright lectureship in Australia, has been named chairman of the department of economics and business administration at Duke University.

Robert L. Dickens has been promoted to associate professor of accounting in the department of economics and business administration, Duke University.

Oliver D. Dickerson has resigned as associate professor of insurance at the Wharton School, University of Pennsylvania.

William P. Dillingham has been promoted to professor of economics at Florida State University.

Sergei Dobrovolsky, formerly of Wayne State University, has accepted a position as professor and chairman of the department of economics at Rensselaer Polytechnic Institute.

James O. G. Drake has been appointed instructor in finance at the Wharton School, University of Pennsylvania.

James A. Drayton has been appointed lecturer at The City College, New York City.

Robert R. Edminster has been appointed lecturer in economics, University of California, Berkeley.

Leo M. Egand, formerly of Voorhees, Walker, Smith and Smith, has joined the permanent staff of the Cleveland Metropolitan Services Commission.

Philip Elkin, of the University of Pennsylvania, has been appointed assistant professor of economics in the School of Business and Public Administration, Temple University.

Hugh R. Elliott, formerly of the University of Chicago, has been appointed instructor in economics at Wayne State University.

Bert E. Elwert has been appointed administrative assistant to the director, Bureau of Business Research, and faculty lecturer in business administration, School of Business, Indiana University.

Emerson C. Erb, Jr. has been appointed faculty lecturer in accounting, School of Business, Indiana University.

Joseph R. Ewers has been appointed faculty lecturer in business administration, School of Business, Indiana University.

Grant N. Farr has been promoted to associate professor of economics, and has been elected to a 3-year term as chairman of the department, University of Colorado.

Alvin F. Farrar has been appointed instructor in economics at the Wharton School, University of Pennsylvania.

Martin T. Farris, formerly of Ohio State University, has been appointed assistant professor of economics and transportation at Arizona State College at Tempe.

Edward Fei has accepted a post with the Harvard-Pakistan Planning Board Project, and is now serving as economic advisor to the government of East Pakistan.

William J. Fellner of Yale University has been appointed to the Irving Fisher Research Professorship in Economics for 1957-58, and is spending the year at Cambridge University.

Eberhard Fels has been reappointed visiting assistant professor for the current academic year in the department of economics, University of California, Berkeley.

W. J. Feuerlein has accepted a position with the Ralph M. Parsons Company of Los Angeles as consulting economist on a project in Pakistan.

Paul Fisher has been appointed lecturer in labor and industrial relations at Georgetown University.

Waldo E. Fisher has been appointed professor emeritus of industry at the Wharton School, University of Pennsylvania.

Leslie Fishman has been appointed assistant professor of economics at the University of Colorado.

Lyle C. Fitch is on leave from the Institute of Public Administration to serve as First Deputy City Administrator of New York City.

E. I. Fjeld of The City College, New York City, is visiting professor of accounting at Los Angeles State College during the current academic year.

Edwin B. Flippo, formerly of Miami University, has accepted a position as associate professor of management at Los Angeles State College.

William A. Forbes has been appointed instructor in economics at the School of Business and Public Administration, Temple University.

James W. Ford, of Vanderbilt University, has been appointed associate professor of economics at Ohio State University.

Lawrence E. Fouraker has been promoted to professor of economics at the Pennsylvania State University.

Harold G. Fraine, University of Wisconsin, is a member of the Wisconsin group helping to develop work in economics at the University of Gadjah Mada, Djogjakarta, Indonesia.

Andrew G. Frank has been appointed lecturer in economics at Michigan State University.

Arthur Freedman has been appointed lecturer in finance at the Wharton School, University of Pennsylvania.

Cedric V. Fricke has been appointed instructor in economics at Wayne State University.

Edward E. Furash has been appointed instructor in the department of marketing and foreign commerce, Wharton School, University of Pennsylvania.

Paul Garfield, formerly of Miami University, is now employed by Foster Associates, public utility consultants, Washington, D.C.

Morris E. Garnsey is at Harvard University on a Ford Foundation research fellowship. He recently served as special consultant to the Governor of Colorado in forming policy for the newly created Department of Natural Resources.

Leonard J. Garrett has been appointed research instructor in industry at the Wharton School, University of Pennsylvania.

Roth Gatewood has been appointed instructor in business administration in the School of Business, University of Kansas.

T. W. Gavell, formerly at the University of Wisconsin, has been appointed assistant professor of economics at West Virginia University.

Franz Gehrels, of Indiana University, has been awarded a Fulbright lectureship for 1957-58 at the University of Mainz.

A. L. Geisenheimer has retired from the University of South Carolina.

John M. Gersting has been appointed director of the department of economics and transportation, School of Business, Economics, and Government at John Carroll University.

James Gilbert has been appointed lecturer at The City College, New York City.

Floyd E. Gillis has been appointed associate professor of economics and industrial management at Purdue University.

Meredith B. Givens, of the New York State Department of Labor, is serving as executive director of the New York State Interdepartmental Committee on Low Incomes.

J. B. Glassburner, of the University of California, Davis, is a member of the California Field Staff, University of Indonesia, Djakarta.

Gerald J. Glasser has been promoted to assistant professor of economics at New York University.

Jay Goldfarb has been appointed instructor in statistics at the Wharton School, University of Pennsylvania.

Gustavo R. Gonzalez is serving as research economist in the Division of Agricultural Economics, Ministry of Agriculture, Commerce and Industries, Republic of Panama.

Charles S. Goodman has been promoted to professor of marketing at the Wharton School, University of Pennsylvania.

Thurston H. Graden has been appointed instructor in economics in the School of Business and Public Administration, Temple University.

Warren S. Gramm has been promoted to assistant professor of economics and has been appointed acting chairman of the department of economics at the University of California, Davis.

William D. Grampp, of the University of Illinois in Chicago, has been appointed visiting professor of economics for the first semester at the University of Wisconsin.

D. H. Granbois, formerly of the University of Illinois, has been appointed instructor in marketing at the University of Florida.

David Granick has been appointed assistant professor of economics at Carnegie Institute of Technology.

Melvin L. Greenhut has been appointed professor of economics at Florida State University.

Paul M. Gregory has been promoted to professor in the department of economics, School of Commerce and Business Administration, University of Alabama.

John A. Gronouski, formerly of the University of Wisconsin, has been appointed assistant professor of economics at Wayne State University.

Eleanor M. Hadley has been appointed associate professor of economics at Smith College.

Ivan Hall has been appointed instructor in the College of Business Administration, University of Arkansas.

Morris Hamburg has been promoted to associate professor of statistics at the Wharton School, University of Pennsylvania.

Daniel C. Hamilton has been appointed lecturer in economics at the Wharton School, University of Pennsylvania.

Arthur W. Hanson has retired from the faculty of the Harvard Business School, and is engaged in private business in Boston.

John S. Harlow has been appointed assistant professor in the College of Commerce, State University of Iowa.

James Harrington, Jr., formerly of Southern Methodist University, has been appointed assistant professor, College of Business Administration, University of Georgia.

C. Lowell Harriss is serving as consultant on state taxation to the Temporary State Commission on the Constitutional Convention, State of New York.

Joseph R. Hartley has been appointed assistant professor of transportation, School of Business, Indiana University.

Rasool M. H. Hashimi has been appointed lecturer in economics at Michigan State University.

Father Gerard Hebert is teaching courses in labor economics at McGill University.

Harold J. Heck, on leave from Tulane University, is serving as commercial attaché at the American Embassy in Paris.

Bruce C. Hemer has been appointed instructor in insurance at the Wharton School, University of Pennsylvania.

William M. Hench has been promoted to professor of economics at the Pennsylvania State University.

John P. Henderson, on leave from the University of Pittsburgh, is visiting associate professor in the Bureau of Economic and Business Research, University of Illinois. He is also executive editor of *Current Economic Comment*, published by the Bureau.

John S. Henderson has been promoted to the rank of professor in the department of economics in the School of Commerce and Business Administration, University of Alabama.

Edward S. Herman has been promoted to associate professor of economics at the Pennsylvania State University.

O. E. Heskin, who served with the State Department in Egypt for two years, has returned to the University of Florida as professor of economics.

Forest G. Hill has resigned from the University of California, Berkeley, to accept a position as associate professor at the University of Buffalo.

Seymour Himmelstein has been appointed lecturer at The City College, New York City.

L. Gregory Hines, of Dartmouth College, has served as economic consultant to the United States Public Health Service for the past year.

Abraham Hirsch is on leave from the College of William and Mary for the current academic year to teach economics at Robert College, Istanbul.

Stanley C. Hollander has been promoted to associate professor of marketing at the Wharton School, University of Pennsylvania.

William C. Hollinger has been appointed assistant professor of economics at Williams College.

Oswald Honkalehto, formerly of Massachusetts Institute of Technology, is now senior research fellow in economics at Carnegie Institute of Technology.

Calvin B. Hoover has resigned as chairman of the department of economics and business administration, Duke University.

John K. Horner has been appointed lecturer in business and economics at the University of Maine.

Willard Horwich has been appointed assistant professor of accounting at Los Angeles State College.

Wayne E. Howard has been promoted to assistant professor of industry at the Wharton School, University of Pennsylvania.

Willard Howard has been appointed instructor in economics at the University of Wyoming.

John H. Huber, formerly at Syracuse University, is serving as an economic and program analyst with the U.S. Operations Mission (International Cooperation Administration) in Phnom Penh, Cambodia.

J. R. T. Hughes is on leave from Purdue University for the current academic year to serve as visiting lecturer in the economics department at Columbia University.

Fred C. Hung, formerly of Harvard University, has accepted an appointment as acting assistant professor of economics at the University of California, Davis.

John M. Hunter has been named acting head of the department of economics, Michigan State University.

Clyde L. Irwin has been appointed instructor in commerce at the University of Kentucky.

Frank H. Jackson has been appointed assistant professor of economics at Florida State University.

Arthur T. Jacobs, Director of Administration of the Union of American Hebrew Congregations, has also been appointed Administrative Secretary.

Henry R. Jaenicke has been appointed instructor in accounting at the Wharton School, University of Pennsylvania.

Ralph James has been appointed instructor in the Industrial Relations Section, Massachusetts Institute of Technology.

Joel E. Jensen has been appointed instructor in industry at the Wharton School, University of Pennsylvania.

David B. Johnson, formerly with the Atomic Energy Commission, has been appointed assistant professor of economics at the University of Wisconsin.

Dudley W. Johnson has been promoted to assistant professor of economics at Lehigh University.

Margaret Johnson has been appointed instructor in the College of Business Administration, University of Arkansas.

William E. Jones is an instructor in accounting in the School of Business Administration, University of South Carolina.

Stanley Kaish has been appointed instructor in marketing and foreign commerce at the Wharton School, University of Pennsylvania.

Benjamin J. Katz has been appointed associate professor of economics at New York University.

Robert A. Kennedy has been appointed assistant professor of finance in the College of Business Administration, University of Arkansas.

Charles C. Killingsworth has resigned as head of the department of economics to become director of the Labor and Industrial Relations Center, Michigan State University.

Robert L. King, formerly of Michigan State University, is assistant professor of marketing in the School of Business Administration, University of South Carolina.

Robert K. Kinsey, formerly of Columbia University, has been appointed instructor in the department of economics, Rutgers University.

Himy B. Kirshen, formerly of the University of Maine, has been appointed dean of the School of Business Administration at the University of Massachusetts.

Philip A. Klein, on leave from the Pennsylvania State University, is with the National Bureau of Economic Research.

Sidney Klein, formerly of Columbia University, has been appointed assistant professor in the department of economics, Rutgers University.

Frank H. Knight, of the University of Chicago, will be the inaugural visiting scholar at the Thomas Jefferson Center for Political Economy, University of Virginia, from January through June 1958.

Ernest Kohn has been appointed lecturer at The City College, New York City.

Richard F. Kosobud has been appointed instructor in economics at the Wharton School, University of Pennsylvania.

Walter Krause, of the International Cooperation Administration in Washington, was a member of the U. S. Delegation to the Colombo Plan Conference, held in Saigon, Viet Nam, in October.

Juanita M. Kreps has been appointed visiting assistant professor of economics in the department of economics and business administration, Duke University.

Theodore J. Kreps, professor in the Graduate School of Business, Stanford University, was awarded an honorary degree of Doctor of Laws by the University of Colorado on August 24, 1957.

Joseph Krol has been appointed professor of industrial engineering at Georgia Institute of Technology.

Ethel Kroopnick has been appointed instructor in economics at Wayne State University.

Sherman Krupp has been appointed instructor in economics at the University of Pittsburgh.

Robert Kvam has accepted a position as assistant professor of accounting at Michigan State University.

Paul G. LaGrone has been appointed associate professor of accounting in the College of Business Administration, University of Arkansas.

Harry H. Landreth, Jr., has been appointed instructor in economics at Miami University, Oxford, Ohio.

Raymond R. Lauer is on the staff of Mt. St. Mary's College, Emmitsburg, Maryland.

Hugh E. Law is instructor in economics at California State Polytechnic College, San Luis Obispo.

Preston P. LeBreton, formerly of the University of Detroit, has been appointed associate professor and head of the department of management and marketing at Louisiana State University.

Stewart Lee has been appointed chairman of the department of economics and business administration, Geneva College.

George Leibowitz has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Jack Leonard has been appointed assistant professor of business administration at the University of Arizona.

Paul H. Levenson has been appointed assistant professor of business administration at Clark University.

Richard K. Lewis has been appointed research associate in the School of Business, University of Kansas.

Richard Lindhe has been appointed instructor in accounting, School of Business, University of Chicago.

Robert Lindsay, on leave from the Federal Reserve Bank of New York for the current academic year, is visiting associate professor of banking at New York University.

Samuel M. Loescher, of Indiana University, has a Fulbright lectureship for 1957-58 at the Norwegian School of Business, Bergen, Norway.

Victor M. Longstreet has resigned from the Federal Reserve Bank of St. Louis to become head of the management research department, Schering Corporation, Bloomfield, N.J.

John R. Lowry has been appointed instructor in marketing and advertising in the School of Business Administration, University of Pittsburgh.

Henry Ludmer has been appointed professor of business administration at Roosevelt University, Chicago.

Robert Lyon has been appointed assistant professor of economics in the School of Business and Public Administration, Temple University.

David MacEachron has been appointed lecturer at The City College, New York City.

Owen J. Mahon has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Lawrence F. Mansfield has been appointed assistant professor of economics at Florida State University.

F. Ray Marshall has been appointed associate professor of economics at Louisiana State University.

Daniel Marx, Jr., has returned to Dartmouth College as chairman of the department of economics after having served a year as a senior staff member of the President's Council of Economic Advisers.

B. E. Matecki has returned to Lynchburg College after being at the Center for Research on World Political Institutions, Princeton University.

C. A. Matthews has been appointed interim head of the department of finance and insurance, College of Business Administration, University of Florida.

John M. Mattila has been promoted from assistant professor to associate professor of economics at Wayne State University.

Joseph Mayer has retired from the chairmanship of the department of economics at Miami University, Oxford, Ohio.

Joseph L. McAuliff has been appointed instructor in the College of Business Administration, University of Arkansas.

John McCalley, formerly with the Federal Reserve Bank of New York, has been appointed lecturer at The City College, New York City.

Elzy V. McCollough has been promoted to associate professor of accounting at Louisiana State University.

Stephen L. McDonald, formerly with the Humble Oil and Refining Company, has been appointed associate professor and head of the department of finance at Louisiana State University.

Duncan M. McDougall has been appointed assistant professor of economics at Purdue University.

John S. McGee has been appointed associate professor of government and business, School of Business, University of Chicago.

William J. McKinstry has been appointed assistant professor of economics at Miami University, Oxford, Ohio.

Frank C. McLaughlin, Jr., has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

William McLaughlin has been appointed instructor in the College of Business Administration, University of Arkansas.

David C. McMurtry has been appointed assistant professor at the University of Kentucky.

Paul Medow, of Columbia University, has been appointed instructor in the department of economics, College of Arts and Sciences, Rutgers University.

Alexander Melamid has been appointed associate professor at New York University. He is also visiting professor in the Graduate Faculty of the New School for Social Research.

David C. Melnicoff has been appointed lecturer in finance at the Wharton School, University of Pennsylvania.

Allan Meltzer, formerly of the University of Pennsylvania, is now assistant professor of economics at Carnegie Institute of Technology.

H. Lawrence Miller, Jr., has been appointed assistant professor in the department of economics, University of California, Los Angeles.

Reuben Miller, of Ohio State University, is acting assistant professor of economics at Oberlin College for the current academic year.

Michael S. Mirski has been appointed general economist in the economic studies branch, Division of Program Analysis, Social Security Administration.

C. Clyde Mitchell has resigned from the University of Nebraska to join the staff of Technical Assistance Experts of the Food and Agriculture Organization. His present assignment is to assist the Ministry of Economics of Mexico on national and regional economic planning.

William G. Modrow has been appointed assistant professor in the department of economics, Texas A. and M. College.

Albert Mossawir has been appointed instructor in economics at Wesleyan University.

David C. Motter has been appointed lecturer in economics in the Wharton School, University of Pennsylvania.

Roland T. Mullins has been appointed instructor in the College of Business Administration, University of Arkansas.

Francis Murans has been appointed instructor in economics at Loyola University, Chicago, Illinois.

J. Carter Murphy has been promoted to associate professor of economics at Washington University.

John J. Murphy has been appointed assistant professor of economics in the Catholic University of America.

Mary E. Murphy has been promoted to associate professor of accounting at Los Angeles State College.

Donald S. Murray has been promoted to professor of statistics in the Wharton School, University of Pennsylvania.

John Muth, formerly of the University of Chicago, is now senior research fellow in economics at Carnegie Institute of Technology.

Charles G. Myers has been appointed assistant director, Bureau of Personnel Relations and Placement and faculty lecturer in management in the School of Business, Indiana University.

John G. Myers is a member of the staff of the New York State Interdepartmental Committee on Low Incomes.

James I. Nakamura has been appointed lecturer at The City College, New York City.

Erwin E. Nemmers, formerly of the University of Wisconsin, has been appointed associate professor of business administration at Northwestern University.

Mabel Newcomer retired from the department of economics, Vassar College, in June 1957.

Monroe Newman has been promoted to associate professor of economics at the Pennsylvania State University.

R. W. Niemela, formerly of Massachusetts Institute of Technology, has been appointed assistant professor of management, University of Florida.

Winston Oberg is associate professor of business in the College of Business and Public Service, Michigan State University.

John L. O'Donnell has been appointed acting director of the Bureau of Business and Economic Research, Michigan State University.

Paul G. O'Leary has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Russell Olson, who has been participating in the Ohio State University program in India, will remain for two years. He will be in charge of the group helping to establish agricultural colleges in northern India.

James R. Omps has been appointed instructor in accounting in the School of Business Administration, University of Pittsburgh.

Earle W. Orr has resigned from Purdue University to accept a position in the Transportation Research Center, Northwestern University.

Thomas J. Orsagh, of the University of Pennsylvania, has been appointed instructor in statistics at Lehigh University.

Wyn F. Owen has been appointed associate professor of economics, University of Colorado.

Robert W. Ozanne has been promoted from assistant professor to associate professor of economics at the University of Wisconsin.

Thomas H. Park has been appointed instructor in economics at Vanderbilt University.

Russell C. Parker has been appointed instructor in economics at Michigan State University.

Burke A. Parsons, on leave from Texas College of Arts and Industries, is lecturer in economics at the University of Texas in the current academic year.

Robert D. Pashek has been promoted to associate professor of transportation at the Pennsylvania State University.

Robert W. Paterson, of the University of South Carolina, has been selected staff study director of the South Carolina legislature's corporate income tax study committee.

Samuel H. Patterson has been named professor emeritus of economics, Wharton School, University of Pennsylvania.

Peter Payne has been appointed visiting lecturer at the Johns Hopkins University for the February 1958 term.

Guy Peden has been appointed instructor in the College of Business Administration, University of Arkansas.

Adam A. Pepelasis has resigned from the University of Buffalo to accept an appointment as assistant professor of economics at the University of California, Davis.

Frank C. Pierson is on leave of absence from Swarthmore College to conduct a study of business education for the Carnegie Corporation.

Robert E. Pierson has been appointed assistant professor of economics at Purdue University.

I. James Pikl has been appointed instructor in economics at Vanderbilt University.

Howard S. Piquet, of the Legislative Reference Service of the Library of Congress, is visiting professor at the University of Washington in the autumn quarter.

Murray E. Polakoff has been promoted from assistant professor to associate professor of economics at the University of Texas.

Michael V. Posner, formerly of the Oxford Institute of Statistics, is visiting lecturer in economics at Wesleyan University.

Olin S. Pugh, of the University of South Carolina, has been named assistant staff director of the South Carolina legislature's corporate income tax study committee.

Doris Pullman has been appointed instructor at The City College, New York City.

Roy Radner has been appointed acting associate professor of economics and statistics in the department of economics, University of California, Berkeley.

Chester Rapkin has been appointed associate professor of finance in the Wharton School, University of Pennsylvania.

J. C. Ray is assistant professor of accounting at Los Angeles State College.

John F. Reinboth, formerly of Northwestern University, has been appointed associate professor of business statistics at Long Beach State College.

Jess L. Rhodes has been appointed instructor in the College of Business Administration, University of Arkansas.

J. Henry Richardson, professor of industrial relations at the University of Leeds, England, is a visiting professor in the Industrial and Labor Relations School, Cornell University.

Clara Robb has been appointed instructor in the College of Business Administration, University of Arkansas.

Robert A. Robertson has been appointed assistant professor of economics in the College of Business Administration, University of Arkansas.

D. M. Robinson has been appointed assistant professor of management in the College of Business Administration, University of Arkansas.

Sam Rosen has been appointed associate professor of economics at the University of New Hampshire.

Nathan Rosenberg has been appointed assistant professor of economics in the Wharton School, University of Pennsylvania.

David F. Ross has been appointed associate professor of economics at Florida State University.

Lawrence I. Ross has been appointed instructor in industry in the Wharton School, University of Pennsylvania.

Melvin Rothbaum has been appointed assistant professor in the department of economics, University of California, Los Angeles.

Seymour Sacks, formerly of the University of Vermont, is economist-in-charge, Cleveland Metropolitan Services Commission.

George G. Sause has been appointed acting head of the economics department of Lafayette College.

Lloyd Saville has been promoted to professor of economics and named director of undergraduate studies in the department of economics and business administration, Duke University.

Eldon L. Schafer has been appointed instructor in business organization and management in the College of Business Administration, University of Nebraska.

Eric Schenker has been appointed lecturer in economics at Michigan State University.

Joseph Scherer has been appointed lecturer at The City College, New York City.

James R. Schlesinger has been on leave from the University of Virginia during the fall semester to lecture at the Naval War College.

Wilson E. Schmidt has been promoted to associate professor of economics at the George Washington University.

Martin Schnitzer has been promoted to assistant professor of economics in the College of Business Administration, University of Arkansas.

Karl W. H. Scholz has been appointed professor emeritus of economics, Wharton School, University of Pennsylvania.

Tibor Scitovsky has been appointed visiting research professor for the spring 1958 term and professor of economics beginning July 1958, at the University of California.

Martin Segal has been appointed assistant professor of economics at Williams College.

Celestino Segni has been appointed fellow-by-courtesy at the Johns Hopkins University for the current academic year.

Lawrence Senesh has been appointed professor of economic education in the economics department, Purdue University.

Carol W. Shaffer has been appointed instructor in economics at Michigan State University.

Milton Shapiro has been appointed analyst in the market research department of American Electronics, Inc., Los Angeles, California.

Robert P. Sharkey has been appointed assistant professor of economics at the University of South Carolina.

Robert P. Shay has been appointed head of the department of business, economics and sociology at the University of Maine and has been promoted to the rank of professor of economics.

Richard B. Sheridan has been promoted from assistant professor to associate professor of economics at the University of Kansas.

Tadeusz A. Siedlik has been appointed assistant professor of business and economics at the University of Maine.

Sidney I. Simon has been promoted to associate professor of economics at Rutgers University.

Barbara Simpson has been reappointed acting instructor in economics at the College of William and Mary for the current academic year.

G. R. Sims, formerly associated with Chandler & Rudd Co., Cleveland, Ohio, has been appointed assistant professor of marketing, University of Florida.

Jack W. Skeels has been appointed assistant professor in the department of economics, Michigan State University.

Edmund A. Smith has been appointed dean of the College of Business Administration, University of Portland, Oregon.

R. Elberton Smith, of the Office of Military History, U. S. Army, has accepted an appointment as visiting professor of economics for 1957-58 at Indiana University.

H. Wayne Snider has been appointed assistant professor of insurance in the Wharton School, University of Pennsylvania.

Eleanor M. Snyder, recently of the Bureau of Labor Statistics, is now a member of the staff of the New York State Interdepartmental Committee on Low Incomes.

Gerald G. Somers, formerly of the University of West Virginia, has been appointed associate professor of economics at the University of Wisconsin.

Julius H. Spalding has been promoted from instructor to assistant professor of economics in the School of Commerce, New York University.

Daniel L. Spencer has resigned from the American University to accept an appointment as associate professor of economics at Southern Illinois University.

Charles E. Staley has been promoted from instructor to assistant professor of economics at the University of Kansas.

W. J. Stankiewicz, formerly of the Department of Economics, Government of Ontario, has been appointed assistant professor in the department of economics and political science, University of British Columbia.

Harry Stark, of the University of Miami, has been on a Fulbright assignment in Argentina in the past summer and fall.

Elroy J. Steele has been appointed assistant professor of economics at Washburn University, Topeka, Kansas.

Irwin Stelzer has been appointed lecturer at The City College, New York City.

R. R. Sterling, formerly of the University of Denver, has been appointed instructor in accounting at the University of Florida.

William R. Stevenson has been appointed instructor in the marketing and foreign commerce department of the Wharton School, University of Pennsylvania.

Marion Stever has been appointed instructor in economics at Hobart College.

Jacob Stockfisch, formerly of the University of Wisconsin and recently with the RAND Corporation, has been appointed associate professor in the department of business administration, University of California, Los Angeles.

Frederic Stuart has been appointed lecturer at The City College, New York City.

Joseph Sulkowski has retired from teaching at the Catholic University of America, where he was associate professor of economics.

Edward Sussna has resigned from Lehigh University to accept an appointment as assistant professor in the department of industry, School of Business Administration, Pittsburgh University.

Eugene L. Swearingen has been appointed dean of the Division of Business, Oklahoma State University.

Boris C. Swerling has been promoted to professor and economist, Food Research Institute, Stanford University. He is continuing to serve on the staff of the President's Council of Economic Advisers, on leave, in 1957-58.

Ram Tarneja has been appointed assistant professor of economics at Duquesne University.

Lloyd Taylor has been appointed instructor in the College of Business Administration, University of Arkansas.

George W. Thatcher has been named chairman of the department of economics, Miami University, Oxford, Ohio.

Ralph L. Thomas has been appointed instructor in economics for the current academic year at the University of Pittsburgh.

Richard S. Thorn is an economist in the Research and Statistics Department of the International Monetary Fund.

Gene B. Tipton, formerly of the University of California, Riverside, has been appointed assistant professor of economics at Los Angeles State College.

William D. Torrence has been appointed instructor in business organization and management in the College of Business Administration, University of Nebraska.

Leland E. Traywick has been promoted to professor of economics and has also been named assistant dean of the College of Business and Public Service, Michigan State University.

Robert Triffin is on leave from Yale University this year to serve as consultant to the Organisation for European Economic Co-operation in Paris.

L. Reed Tripp is serving as coordinator of a field group organized by the department of economics of the University of Washington and sponsored by the Ford Foundation. The group is working with the faculty of economics at Gadjah Mada University, Indonesia on the development of a teaching and research program in economics at the university.

Wendell P. Trumbull, of New York University and the University of Mississippi, has been appointed professor of accounting at Lehigh University.

Joseph Tryon, of the Federal Reserve Board, has been appointed lecturer in the department of economics, Georgetown University.

Bernard Udis has been appointed assistant professor in the department of industry, School of Business Administration, University of Pittsburgh.

Brian R. Van Arkadie has been appointed instructor in economics at Dartmouth College.

Xavier H. Verbeck has been appointed instructor in economics at Michigan State University.

Douglas Vickers has been appointed assistant professor of finance in the Wharton School, University of Pennsylvania.

V. H. Vincent, formerly of the University of Tennessee, has been appointed professor of accounting at West Virginia University.

James M. Waller, of the University of North Carolina, has been appointed assistant professor of economics at the University of Georgia.

Howard A. Ward has resigned as senior economist with the Chrysler Corporation to accept an appointment as associate professor of economics and associate director of the Institute for Business Services at the University of Detroit.

William E. Warrington has been promoted to professor of finance in the Wharton School, University of Pennsylvania.

Ralph J. Watkins, formerly director of research at Dun & Bradstreet, has been appointed director of economic studies at the Brookings Institution.

Gladys F. Webbink has joined the staff of the New York State Interdepartmental Committee on Low Incomes.

Alma B. Weber has been appointed instructor in economic history in the School of Commerce and Business Administration of the University of Alabama.

Dale H. Weeks has resigned from Nebraska Wesleyan to become associate professor of economics at Northern Illinois University.

Irwin Weinstock has been appointed instructor in the College of Business Administration, University of Arkansas.

Burton A. Weisbrod, of Carleton College, has been appointed instructor in economics at Washington University.

Lawrence L. Werboff has been appointed assistant professor of economics at the Pennsylvania State University.

James E. Wert has resigned from Lehigh University to accept a position as financial economist with the Federal Reserve Bank of Cleveland.

David A. West has been appointed assistant professor of business administration and economics at Union University, Jackson, Tennessee.

R. H. West has been appointed assistant professor of management in the College of Business Administration, University of Arkansas.

Richard Westebbe, of the Federal Reserve Board, is lecturer at Georgetown University.

Bartin Westerlund, formerly of the University of Miami, has been appointed assistant professor of marketing in the College of Business Administration, University of Arkansas.

Clifton R. Wharton, Jr. has been appointed executive associate with the Council on Economic and Cultural Affairs Inc., New York City.

Phillip A. Wicky has been appointed instructor in economics in the Wharton School, University of Pennsylvania.

Robert E. Will, formerly of the University of Massachusetts, has been appointed assistant professor of economics at Carleton College.

Frederick Williams has been promoted from instructor to assistant professor in the department of economics, University of Illinois.

John H. Williams, now retired from Harvard University, has been appointed William L. Clayton Professor of International Economic Affairs in the Fletcher School of Law and Diplomacy, Tufts University, for the current year.

Marvis Williams has been appointed associate professor of accounting in the department of economics of Carleton College.

Wendell N. Williams, formerly of the University of Arizona, has been appointed assistant professor of accounting in the College of Business Administration, University of Georgia.

W. V. Wilmot, Jr., formerly of the University of Wisconsin, is now assistant professor of finance at the University of Florida.

Howard Wilson, formerly of the University of Chicago, is now assistant director of the Management Center, Marquette University, and is also assistant professor of management.

Glen Wing has been promoted to associate professor of general business in the College of Business Administration, University of Arkansas.

Willis J. Winn has been promoted to professor of finance in the Wharton School, University of Pennsylvania.

Edwin E. Witte, emeritus professor of economics at the University of Wisconsin, is distinguished visiting professor in the department of economics, Michigan State University, for the current year.

Harold A. Wolf has resigned from Lehigh University to join the staff of the Prudential Life Insurance Co. as economist.

William Wolman has been appointed acting assistant professor of economics at the State College of Washington.

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Economics, statistics, public finance: Applications are being received to fill the position of Highway Research Economist to head a small economics studies section of the research division of the Virginia Department of Highways. The work involves planning, supervising, and conducting research pertaining to highway tax revenues, fund distribution, and the economic significance of highway location and design. Qualifications include a master's degree in economics (course work may not be substituted for thesis) and four years of research experience, at least two years of which must have been in economic research demonstrating performance ability. A Ph.D. degree may be substituted for the two years of higher level research experience. Salary range $6,432-$8,040. Opportunity to undertake or continue part-time Ph.D. course study and to have research for dissertation assigned as the principal duty of the position. Send biographical résumé to Tilton E. Shelburne, Director of Research, Virginia Council of Highway Investigation and Research, Box 3817, University Station, Charlottesville, Virginia.

Economics: Instructor or assistant professor, to teach principles of economics and one or two advanced courses in finance. Permanent position with opportunity for promotion. Teaching experience preferred. Desire man with Ph.D. or with requirements for Ph.D. practically completed. Salary and rank to be determined by education and experience.

Management: Assistant professor to teach courses in management. Permanent position with opportunity for promotion. Ph.D. and teaching experience preferred. Good opportunity for consulting work in a large industrial center. Salary depends upon training and experience.

Accounting: Instructor or assistant professor to teach courses in accounting. Position permanent with opportunity for promotion. Prefer one with C.P.A. and previous teaching experience. Salary and rank based upon training and experience.

Marketing: Assistant professor to teach courses in marketing. Position permanent with opportunity for promotion. Prefer one with Ph.D. and previous teaching experience. Salary and rank based upon training and experience. Good opportunity for consultation work in large industrial center.

Anyone interested in any of the four positions above is asked to write: Dr. Herman P. Thomas, School of Business Administration, University of Richmond, Virginia.

Economic research: A private nonprofit research institute, well established in the physical sciences, is expanding its staff and program in the economics field and desires several senior economists to direct research projects on area and industrial development (both domestic and foreign), natural resources and energy, long-range business planning and transportation. Should have advanced degree, government or industry research experience, publications, supervisory skills and an ability to deal analytically with new problems. Salary will depend upon training and experience. Applications should be addressed to: Economics Division, Midwest Research Institute, 425 Volker Boulevard, Kansas City 10, Missouri.

Accounting and statistics: A leading Southern college will have an opening in September, 1958, for a young man with or close to his Ph.D. Courses will include elementary accounting and statistics. Salary and rank depend upon training and experience. P198

Management—mathematician, applied statistics: To work with Operational Analysis and Control Group in attacking a variety of operational problems. Must have an ability to create models which designate the system under study. The group has access to up-to-date data processing equipment, including the IBM 650 Computer. Excellent benefits and pleasant working conditions. College and graduate studies available. Please send complete résumé, including education, experience, and salary requirements to: Employment Manager, Winchester-Western Division, Olin Mathieson Chemical Corporation, New Haven 4, Connecticut.

Economics or economics and insurance: Professor wanted for fall, 1958, in Midwestern state college. Salary $5,000 to $7,500 for academic year, depending on training and experience. P199

Economists Available for Positions

Economics, economic history, financial history, public finance, banking, investments: Man, Ph.D., New York University, 1953. Currently assistant professor at large Eastern university; has published articles, reviews; is coauthor of book and associate editor of scholarly journal. Would like to relocate and would be willing to do some administrative work in addition to teaching. E665

Public finance, private investment, planning and development: Man, 24; Master of Economics, University of Texas; Doctor of Economics, Université de Fribourg; Doctor of Law and Master of Philosophy, Santo Domingo University. Four years of experience with a law firm; 3 years of experience teaching economics and history in night college. Speaks Spanish (native tongue), English, French, and fair knowledge of Italian, Portuguese, and German. Publications in economics, philosophy, and literature. Desires teaching or business position. References. E694

Corporation finance, budgetary analysis, management, industrial relations and labor economics, economics, economic development of underdeveloped areas: Man, 40, from India; B.A., M.A., M.B.A., requirements for Ph.D. completed except dissertation, which is in progress. Served as circulation manager to the *Times of India*, Delhi; 2 years of teaching experience in India. At present working as an instructor in economics and corporation finance in Eastern university. Interested in a research or teaching position. E698

Economic principles, applied economics, problems of labor and industry, problems of contemporary society: Man, 31, married; Ph.D. Four years of teaching experience. Interested in economic development of underdeveloped areas. Desires research position in university, private organization, or public agency. Will consider part-time teaching in connection with research duties. E700

Business cycles and forecasting, economics, corporate finance, money and banking, public finance, statistics, security analysis, investments: Man, 33, married; M.B.A., Wharton. Broad experience includes 3 years of teaching finance and economics (graduate and undergraduate levels); 1 year as economist with federal government; 5 years in business. Currently doing economic and financial analysis and business forecasting with industrial corporation. Desires college teaching and/or administrative position. New York or Northeastern U.S. location preferred. E701

Credit and collections: Man, M.A., Columbia University. Desires teaching position in credit. At present credit and collection manager. E702

Economics, business, insurance, banking: Man, 40; M.A., J.D. Trained at European and American universities; governmental experience in Europe. Private in U.S.A. E703

Economic theory, history of economic thought, business cycles, money and banking, international economics, economic systems: Man, 45, married; Ph.D. Twelve years of teaching experience; 4 years with federal government; 2½ years with United Nations in Europe; 4 years of university administration; 2 years with private international agency. Postgraduate study at London School of Economics. Currently professor and department chairman in liberal arts college near Washington, D.C.

Desires relocation in university or liberal arts college. Available in September, 1958. E705

Economic principles, monetary economics, analysis, international economics, trade policy: Man, 45; Ph.D. British and U.S. education; background in history of economic doctrine and economic history. Teaching experience; knowledge of French and Spanish; several articles published and others in preparation. Eager to pursue research and further develop courses now being given. E707

Economic theory, economic thought, comparative systems, economic principles, marketing and advertising research, statistics, economic history: Man, 27, married; M.A. Five years of experience in business research (marketing and advertising, motivation, sales analysis) with private research firm and national firm. Some teaching experience. Desires to return to teaching and academic world. Willing to do some administrative work in addition to teaching. Opportunities for Ph.D. work preferred. E709

Economics and business management, industry, finance, agriculture, international operations, international law: Man, 52, married; B.A., B.S., M.S., LL.B., M. Journalism; completed Ph.D. requirements. Professor of economics, market research, international law at a graduate school in Europe; executive of national industrial trade association; American and European business management experience; at present international lending officer of prominent U.S. bank. Coauthor of book recently published by leading Western university; knowledge of commodities and markets; speaks 6 languages. Desires position in business, research, or teaching offering challenge for useful application of his valuable experiences and breadth of perspective. E711

Economic principles, finance and banking: Man, 42; fellowships, honor societies. Publications. Present rank full professor. Desires teaching position of professional rank or research position. E713

Economic principles, history of economic thought, business and government, international economics, comparative economic systems, economics of Eastern Europe: Man, 41, married; Oxford trained. Nine years of experience in British government service and international economic negotiations; 9 years of teaching experience in Eastern university. Two books, several articles, one book almost completed. Desires teaching or teaching-cum-administrative post; also interested in possibilities with research organization or business or financial corporation. Prefers to locate in East or Mid-Atlantic States or Canada. E714

Economic principles, economic thought, economic history, labor economics, money and banking, public finance, business cycles: Man, middle-aged; Ph.D., social science. Broad experience in teaching, government, and business. Southeastern or Southern location pereferred but others considered. E715

Statistics, economics of industry, labor, government and business, economic principles: Man, 34; Ph.D., 1953. Seven years of teaching experience; 2 years of research experience. Several publications in journals. Will have a textbook published in coming year. Desires teaching position in a private liberal arts institution. E716

Industrial management, accounting, business administration, personnel management, industrial relations, economics, labor economics: Man, 40, married; B.A., National Peking University; M.B.A., Wharton School, University of Pennsylvania; completed Ph.D. requirements at University of Chicago; C.P.A. Six years of college teaching experience; 1 year as department head at Midwest university; 5 years of banking and public finance experience. Interested in writing with a keen mind of value judgment; book under way. Currently visiting member of Midwest state college faculty. Desires permanent teaching position with academic challenge and leadership. Prefers Central or Midwest; will consider East or other areas. Can be available in February; will be available in June and September, 1958. Will consider comparable challenging responsibility in business. E717

Economics, marketing: Man, 31, married; B.S. (economics), M.Ed. (general education and marketing), Ed.D. (higher education and marketing). Four years of part-time business experience while attending universities; 6 years of successful university teaching experience in economics and marketing; 2 years of research experience as manager of local metropolitan research project. Member of A.E.A. and other professional associations. Excellent references available with respect to teaching,

research, and administrative ability. Desires administrative and/or teaching position. Available in September, 1958. E718

Public finance, principles, money and banking, statistics: Man, 37, married; Ph.D., University of Wisconsin. Four years of economics teaching experience; research experience in government and Federal Reserve bank; articles in learned journals. Desires teaching position or research. E719

Labor economics and personnel relations, comparative economic systems, economic principles: Man, 34, married; Ph.D., Columbia University. Business research experience; 5 years of teaching experience. Publications in labor economics and collective bargaining. Currently teaching at a Southern university. Desires position with major work in labor courses. Interested in teaching position in East or South. E720

Accounting, statistics: Man, 47; J.D., Ph.D. Sixteen years of teaching and 7 years in research. Author of several books. Wishes to move to New York Metropolitan area (not more than 200 miles from New York) to teach advanced accounting, auditing, taxes, accounting systems, business and economic statistics, corporation finance, and analysis of financial statements. Minimum salary considered about $7,000 for 10 months. E721

Industrial and personnel management, labor economics, money and banking, economic principles, statistics: Man, 43, married; A.B., M.A., requirements for Ph.D. completed except dissertation, which is in progress. Ten years of successful college and university teaching in above fields; 9 years of personnel experience in industry and government. Especially interested in college or university teaching position. Prefers Midwest location. Available in fall, 1958. E722

Economic theory, statistics, money and banking, market research, corporate finance, history of economic thought, economic development, business cycles, national income, mathematics of finance, foreign trade, international economics: Man, 35; Ph.D., University of Pennsylvania. Broad experience in industry, government, and teaching. Desires university connection either full-time teaching or combination of teaching and research. E723

Principles, economic thought, price and income theory, economic systems: Man, 39, married; European background; Ph.D.; fellowship, scholarship, honor and professional societies. Currently professor of economics at large Eastern Catholic university; 11 years of teaching experience in U. S. Articles and reviews in learned journals; coauthor of book to be published; associate editor of scholarly journal; knowledge of 8 languages. Excellent references. Desires professorship with or without chairmanship of economics department with opportunity to do research. E724

Economic principles, accounting, economic history, business cycles, public relations: Man, 43; A.B. (English), B.S. (accounting), Ph.D. (economic history), London. Six years of teaching experience (in English) at two large universities and a state college and in adult education. Has taught English and economic principles abroad. European correspondent for American liberal monthly for 4 years; experience in business management, both private and quasi-military; now chief of public relations for quasi-military retailing organization in Europe. Wishes to return to university or private research. Would consider university public relations and teaching-research combination or English-economics teaching or teaching-research combination. E725

Labor economics, labor legislation, collective bargaining, economic principles, personnel wage administration, public utility economics, money and banking, public finance, industrial management, business principles: Man, 38; Ph.D., University of Wisconsin. Thirteen years of teaching experience; currently associate professor at a Midwest state university. Numerous articles in learned journals. Experience in executive-development programs, foremen-training programs, and labor-education programs. Desires to relocate in the East. E726

Economic principles, comparative economic systems, economic thought, economic history, sociology, history: Man, 43, married; European background; Ph.D., Dr.jur., postdoctoral work in economics and sociology (Dr. Habil.). Training and experience at a top foreign institute for economic and social research; 11 years of teaching experience at a top Central European university, in adult education, and 2 American colleges. Fluency in 5 languages; studied in several countries; traveled all over Europe, including East. Excellent references. Desires permanent position. Available in summer or September, 1958. E727

Marketing: Man, 35; B.S., M.B.A., major Northeast university; almost completed Ph.D. Extensive responsible experience in government and industry as analyst and research manager. Available for consulting and short-term assignments. Will travel. Salary and/or fees open. E728

Economic planning, history of economic thought, labor economics, government and business, international economics, economic principles: Man, 46, married; Ph.D., Columbia University. Eight years of teaching experience; 10 years of experience with federal government in responsible staff position; publications. Now professor of economics at small liberal arts college. Desires new teaching position. E729

Public finance, money and banking, economic history, history of thought, principles: Man, 39, married; B.A. and M.A. in economics, M.S. in local governmental administration, all earned some time ago; Ph.D. requirements completed at Harvard University except for thesis, which is well underway. Experience in teaching, in governmental research at the local level, and in the operation of small business. Desires university teaching. Available in fall, 1958. E730

Labor economics, economic history, labor relations, personnel administration: Man, 33; Ph.D., Columbia University, 1953. Currently assistant professor at large Eastern university; has published articles and books in fields of labor economics and economic history; at work on book on labor relations; associated for two years with major business research organization. Would like to relocate to another college teaching position. E731

Economic principles, labor economics, international economics, money and banking, labor law, price practices and policies: Man, 28, married; B.A., M.A., and presently working on Ph.D. Two years of full-time college teaching; experience as job analyst, assistant supervisor for State Department project and lecturer for evening adult schools. Eager for position at liberal arts college in Metropolitan New York area. E732

Transportation, public utilities, business and government, business: Man, late thirties; Ph.D., leading university. Articles and reviews; several years of teaching plus governmental experience; has handled variety of courses in economics and business. Interested in associate or high-ranking assistant professorship at large or medium-sized institution. Western location preferred but not mandatory. Available in September, 1958. E733

Economic theory, international trade, banking, public finance: Man, 37; LL.B., M.B.A., Ph.D. Teaching, research, and business experience; international background; publications. Desires challenging teaching and/or research position. Available in June or September, 1958. E734

W I L E Y — BOOKS —

ECONOMIC BACKWARDNESS and ECONOMIC GROWTH

Studies in the Theory of Economic Development

By HARVEY LEIBENSTEIN, *University of California, Berkeley.* Offers an integrated and unified theory of economic development applicable to the world's densely populated backward economies. Although abstract in approach, it is based to a certain extent on empirical information gathered by direct observers in such areas. A special feature is the inclusion of the author's theory of population growth, which complements the economic theory.

The first three chapters, introductory in nature, outline the general problem and clarify the author's intentions and methods of treatment. The heart of the book follows, and is divided into two parts. The first of these analyzes the state of economic backwardness. The characteristics usually found in highly populated underdeveloped economies are examined, discussed, and explained. The author shows that these characteristics are part of a pattern and generally help to reinforce each other. His basic idea is that the simultaneous occurence of these conditions can best be understood in terms of the 'quasi-equilibrium' that underlies the state of economic backwardness.

The second major part of the work deals with the possible escape from backwardness. The author discusses the factors behind the transition to sustained economic growth when certain limiting conditions are met. The final two chapters present statistical and other data to suggest the relative magnitudes of the main variables involved in the theoretical sections, and look at some of the investment policies suggested in the light of the earlier theory. One of a series of books from the research program of the Institute of Industrial Relations, University of California. *1957. 295 pages. $6.75.*

RESIDENTIAL FINANCE in 1950*

By RICHARD U. RATCLIFF, *University of Wisconsin;* DANIEL B. RATHBUN, *Fresno State College; and* JUNIA H. HONNOLD, *U. S. Government. 1957. 180 pages. $6.00.*

FARM HOUSING*

By GLENN H. BEYER, *Cornell University; and* J. HUGH ROSE, *Bureau of the Census. 1957. 194 pages. $6.00.*

The CHANGING POPULATION of the UNITED STATES*

By CONRAD TAEUBER, *Bureau of the Census; and* IRENE B. TAEUBER, *Princeton University. 1957. Approx. 344 pages. Prob. $7.50.*

**One of the Census Monographs, sponsored by the Social Science Research Council in cooperation with the Bureau of the Census.*

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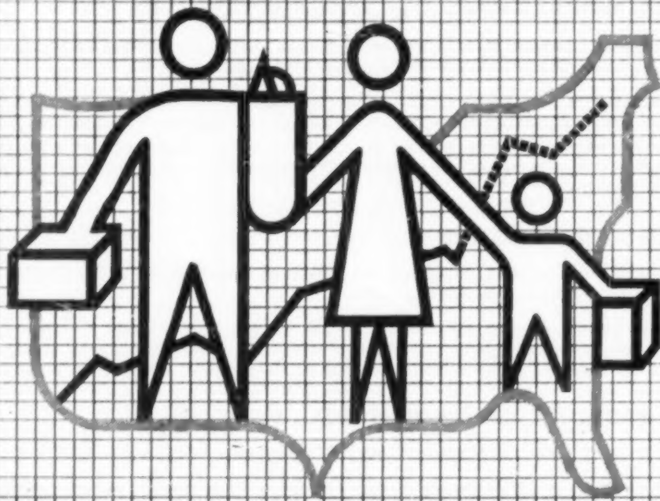

LIFE STUDY OF CONSUMER EXPENDITURES

Scottish Journal of Political Economy

The Journal of the Scottish Economic Society

Vol. IV OCTOBER, 1957 No. 3

Scottish Journal of Political Economy is published in February, June and October, and is free to members of the Scottish Economic Society. Applications for membership should be made to the Treasurer, Scottish Economic Society, 142 St. Vincent Street, Glasgow, C.2, enclosing the annual subscription of One Guinea. The *Journal* may also be obtained by non-members of the Society by ordering through any bookseller or direct from the Publisher, Oliver & Boyd, Tweeddale Court, Edinburgh, price 10s. per single copy.

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